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Appraisal of a Third Education Project in the Republic of Korea

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CURRENCY EQUIVALENTS [1/]

US$1	=	Won 485
Won 1	=	US$0.00206

Fiscal Year

January 1 - December 31

1/ As of December 7, 1974; the previous exchange rate was US$1 - Won 400 (Won 1 = US$0.0025).

REPUBLIC OF KOREA

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REPUBLIC OF KOREA

BASIC DATA

1973

General

Area	98,477 km^2
Population (1974 mid-year estimate)	33.5 million

Education (including private schools)

Enrollment in primary schools (grades 1-6)	5,692,000
As a percentage of 6-11 year age group	106%*
Enrollment in middle schools (grades 7-9)	1,832,000
As a percentage of 12-14 year age group	69%*
Enrollment in high schools (grades 10-12)	839,000
As a percentage of 15-17 year age group	32%*
Enrollment in post-secondary institutions (grades 13-16)	209,000
As a percentage of the 18-21 year age group	8%
Total expenditure on education and training	Won 200.8 billion
As a percentage of GNP	4.1%
Ministry of Education expenditure	Won 118.4 billion
As a percentage of total government expenditure	17.9%

* includes over-age students

GLOSSARY

CLEP	Long-Range Comprehensive Educational Plan, the long-term plan prepared by an interministerial commission in 1970.
KEDI	Korean Educational Development Institute, a government agency in charge of curriculum development and educational research.
MOE	Ministry of Education
MOST	Ministry of Science and Technology
OLA	Office of Labor Affairs, the agency of the Ministry of Health and Social Affairs responsible for accelerated and in-plant training.
OSROK	Office of Supply of the Republic of Korea, the agency responsible for government procurement.

Middle Schools:	Junior secondary schools (grades 7-9)
High Schools:	Senior secondary schools (grades 10-12)
Higher Schools:	Institutions presently offering secondary (grades 10-12) and post-secondary (grades 13-14) vocational courses in technical, agricultural, fisheries and marine education. Grades 10-12 are being phased out.
Junior Colleges:	Post-secondary institutions (grades 13-14).

REPUBLIC OF KOREA

APPRAISAL OF A THIRD EDUCATION PROJECT

SUMMARY AND CONCLUSIONS

i. This report covers the appraisal of a third education project in the Republic of Korea for which Bank assistance of US$22.5 million equivalent is proposed. Two other education projects are being assisted under Credit 151-KO (1969) and Loan 906/Credit 394-KO (1973) amounting to US$14.8 million and US$43.0 million, respectively. The first of these was aimed at qualitative improvements and selective expansion of education in the fields of industry, commerce and agriculture at secondary and post-secondary levels, and of teacher training in universities. The second project also supported this investment policy by assisting technical/agricultural education at sub-professional level and teacher training, and by preparing the way for specific educational reforms through technical assistance. After initial delays both projects are progressing satisfactorily.

ii. Korea's education and training system is quantitatively well developed. Its distinguishing characteristics are: high enrollment ratios, high internal efficiency, low costs per student, a high proportion of post-primary students enrolled in work-related courses, good employment rates for graduates and moderate urban/rural enrollment disparities. These achievements are the result of the consistent high priority assigned to educational expenditures in the post-war period. Nevertheless, important qualitative shortcomings and structural imbalances remain. Weaknesses include inappropriate curricula, lack of suitable teaching equipment and specialized facilities and academically-oriented teaching practices for technical education. The structural imbalances are reflected in specific deficits for technicians and a general shortfall in training capacity for skilled workers.

iii. The proposed third education project would help pursue three objectives:

(a) to meet manpower requirements for specific economic sectors at the skilled worker and technician levels, while improving the quality of instruction in the respective segments of the education system;

(b) to establish the basis for a flexible employment-oriented system of non-formal vocational training; and

(c) to assist from the manpower development perspective the Government's policy of geographic deconcentration of industries.

iv. The proposed project includes:

		Grades	No. of New Student Places
(a)	construction and equipment of a new technical high school;	10-12	1,980
(b)	equipment and extensions of buildings for:		
	- three agricultural junior colleges;	13-14	600
	- one fisheries college; and	13-16	180
	- three fisheries high schools;	10-12	1,080
(c)	equipment for one merchant marine junior college; and	13-14	640
(d)	construction and equipment of seven new vocational training institutes.	-	2,520

The project would also include financing of engineering and technical services for the preparation of future education projects.

v. Specifically, the project components would serve the following purposes:

(a) the new technical high school would supply about 660 skilled industrial workers per year mainly for new industries to be located nearby;

(b) the agricultural junior colleges would undergo qualitative improvements and limited expansion eventually to supply about 1,200 technicians annually required for increasingly complex agro-industrial development;

(c) the fisheries college and the fisheries high schools would increase in quality and size to meet specific middle level manpower requirements resulting from plans to double Korea's fishing fleet by 1981;

(d) the merchant marine junior college would contribute towards the personnel requirements of the country's rapidly expanding merchant fleet, expected to become an important source of foreign exchange earnings;

(e) the seven vocational training institutes would train about 3,800 skilled industrial workers annually and provide additional training opportunities for 2,500 terminal students from middle schools p.a. This non-formal system of training would be closely linked with employment opportunities and could respond quickly through adaptation of its short courses to changing labor market requirements. Equity considerations would also be taken into account;

(i) through a 50% enrollment quota for rural students; and

(ii) indirectly through the location of the institutes in new growth poles outside the Seoul-Incheon and Busan areas.

vi. A tracer system would be established under the project to determine the employment status of graduates and their performance on skill tests. The information collected by this system would be used to ascertain whether the objectives of the project are being attained and to identify weaknesses in curricula and teaching methods that need to be rectified. Technical assistance would be arranged by the government to implement a program to strengthen the training of technical teachers in technical high schools; and to support the establishment of the vocational training institutes.

vii. The total project cost is estimated at US$39.1 million with a foreign exchange component of US$22.3 million equivalent, or 57% of the total project cost. Implementation is expected to last four and a half years. The proposed project would be administered by two project units. The existing project unit in the Ministry of Education would be expanded to enable it to carry out added responsibilities for implementation and supervision as a result of the proposed third project. A unit in the Office of Labor Affairs would assume administrative and financial control and liaison with the Bank with regard to the vocational training institutes.

viii. Both project units would work closely with the Office of Supply, Republic of Korea, for the procurement of civil works, furniture and equipment. Furniture and equipment contracts over US$50,000 would be awarded on the basis of international competitive bidding. Contracts for civil works and small amounts of furniture and equipment (under US$50,000) would be awarded on the basis of competitive bidding open to Korean and foreign firms following domestic advertising because of the limited sizes involved in each institution and difficulty in "packaging" contracts to attract foreign bidders. Suitably qualified domestic manufacturers of equipment would be allowed a margin of preference equivalent to the existing customs duties for competing imports, or 15% of the c.i.f. price, whichever is lower. Present customs duties on most equipment exceed this percentage.

ix. Bank assistance would meet 100% of the estimated direct and indirect foreign exchange costs. Disbursements would be made against the c.i.f. cost

of imported equipment, the ex-factory cost of locally produced equipment, 70% of the cost of imported equipment locally procured, 30% of total expenditures on civil works, furniture and professional fees and 90% of total expenditures on engineering and technical services for the preparation of future projects.

x. Up to 1981, the project institutions would contribute about 3% to the total supply of technicians and skilled workers over the period 1974-81. Improvements in facilities, equipment, teacher training and curricula would enable more practical training and skills to be taught than at present. This improved training is expected to contribute to productivity growth by increasing worker efficiency and decreasing the amount of defective work and accidents. The project would also assist in improving educational opportunity and subsequent employment prospects by the location of its new institutions in new industrial areas and by establishment of quotas for rural students. In sum, the project would form an integral part of the Bank lending strategy to Korea to assist a balanced development among sectors and regions.

xi. The project is suitable as a basis for a Bank loan of US$22.5 million equivalent to the Republic of Korea with a term of 25 years, including a 7-year grace period.

REPUBLIC OF KOREA

APPRAISAL OF A THIRD EDUCATION PROJECT

I. INTRODUCTION

1.01 The World Bank group's first education project in Korea (1969) under Credit 151-KO (US$14.8 million equivalent) was designed to contribute to priority improvements in the educational system in accordance with perceived manpower needs for economic development (Appendix I). These improvements included extensions to, and equipping of, 27 technical, commercial and agricultural high schools, five post-secondary higher schools, four departments of education at the university level and technical assistance to complement these project items. Project implementation was slowed at the start because of delays in appointment of consultants and inexperience in equipment procurement. Implementation is now proceeding satisfactorily. Construction is complete and 75% of the equipment has been procured. Installed equipment is being used effectively. Time lost due to initial delays cannot be fully recovered and the Closing Date has been extended by one year to December 31, 1975.

1.02 The second education project (1973) under Loan 906-KO/Credit 394-KO (US$43 million equivalent) continued to support the Government's policies on economic development by an improved alignment of the education sector to the needs of agriculture, industry and social development (Appendix I). The project consists of equipment and extension of buildings for 18 technical and 14 agricultural high schools and in 43 post-secondary institutions in selected fields where manpower shortages had been identified. It also includes pre-investment studies in management and health education. Implementation of the second project is satisfactory after overcoming some initial delays in the appointment of consultant architects. Substantial cost overruns due to recent inflationary developments are expected on civil works; these will be financed by the Government.

1.03 The design of the proposed third education project is based on a UNESCO project identification report (May 1974), complemented by subsequent discussions with the Government. It includes priority education and training items. A Bank mission visited Korea in July-August, 1974 to assist the Government in completing the preparation of the project and to appraise it. The mission consisted of Messrs. S. Z. Sung (technical educator), A. S. Naimie (architect) and H. H. Thias (economist) of the Bank and Messrs. N. Fujinami (fisheries education specialist, FAO), R. Ganeff (general educator, Unesco) and R. Maxwell (agricultural educator, consultant). The project would cost an estimated US$39.1 million equivalent with a foreign exchange component of US$22.3 million.

II. DEVELOPMENT AND MANPOWER NEEDS

Socio-Economic Background

2.01 Korea's population of 33.5 million (1974) is presently growing at an annual rate of 1.7% compared with over 2.0% in the 1960s. This decrease will somewhat ease the burden of education financing as smaller cohorts enter primary education in the coming years. Another factor that favors education is the high population density now approaching 350 persons/km^2 which means that even in rural areas economical sizes can be maintained for primary and middle schools without imposing excessive commuting distances on pupils. Primary education has become virtually universal, and the adult literacy rate has reached 92%.

2.02 During the last decade the Korean economy has been among the fastest growing in the world. GNP increased by an unprecedented 16.9% in 1973, after having averaged an annual growth rate of 9.5% between 1963 and 1972. Average employment growth during that period was 2.6% p.a. implying a rapid increase in the output per worker of about 7% p.a. Sectoral output (employment) growth rates in real terms during 1963-1972 were 4.1 (1.1%) for agriculture, 17.4 (9.4%) for industry and 10.3 (6.2%) for services. This growth is remarkable since Korea has limited natural resources. Economic development is centered on the availability of human resources - a hardworking, well educated labor force combined with entrepreneurial initiative - supported by appropriate economic policies.

2.03 Korea's economic development strategy aims at transformation from a semi-agrarian to a highly industrialized economy closely integrated with the world market. While continuing its emphasis on agricultural and rural development, a major aspect of the Government's long-term strategy is the development of industry, particularly heavy industry. Korea's long-term industrial plans are based on the premise that the growth-path followed over the last decade or so can be extrapolated through the early 1980's by continuing to rely on export-led industrial growth to provide the momentum for economic development. The pattern of industrial growth is, however, expected to change and show a much greater emphasis on investment in heavy industry both in order to realize the benefits of import-substitution and to counteract the effects of: (a) the trend towards protectionism in some of Korea's potential markets for light manufactures, and (b) increasing competition in this field from other developing countries with cheaper labor costs. The structural implications of the planned growth for the period 1972-81 are as follows:

(a) the share of the primary sector (agriculture, forestry and fisheries) in GNP is estimated to diminish from almost 29% in 1972 to 18% in 1981, and in total employment from just over 50% to 35%;

(b) the secondary sector (mining and manufacturing) is expected to increase its proportion in GNP from 24% to almost 35% and in total employment from 14% to 23%;

(c) the tertiary sector (social overhead capital and other services) would maintain its share of about 47% in GNP while becoming the largest employer with almost 42% of total employment in 1981 compared with about 35% in 1972.

2.04 This industrial growth will have important geographic and equity dimensions. Economic expansion would be concentrated in a number of new locations to relieve the regional imbalance resulting from the present concentration of industry in the Seoul-Incheon and Busan areas. Because of short distances and high population density, the economic benefits resulting from the establishment of new industrial centers will eventually spread throughout the rural areas. By providing the rural population with increased opportunities for non-farm employment, and by continuing to supply urban jobs for surplus labor from agriculture, rural incomes are projected to achieve near-parity with those in urban areas by 1981.

2.05 The recent changes in the world economy have had a significant impact on Korea. While its GNP growth in 1974 was still impressive Korea is experiencing several difficulties including a deterioration in its balance of payments situation and substantial domestic price increases. 1/

Economic Development and Manpower Requirements

2.06 To support its economic development programs with adequate human resources, the Korean Government has developed a series of long-term manpower forecasts for the period 1967-86, as well as more specific demand and supply estimates for scientific and technical manpower covering the years 1972-81.

2.07 Based on an overall GNP growth projection of 10.3% p.a. total employment is projected to increase by 3.2% p.a. over the period 1972-81, the sectoral employment growth rates for agriculture, industry and services being -0.1%, 8.5% and 4.5% p.a., respectively. The manpower projections refer to three broad levels of technical manpower: scientists and engineers, technicians and skilled workers (Annex 1). The corresponding education levels are broadly speaking a university or four-year college degree in one of the science or engineering disciplines, graduation from a two-year junior technical college and three years of technical high school

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1/ The recent economic developments are explained more fully in the President's Report for this Project.

education or an equivalent amount of non-formal training, respectively. The growing skill intensity anticipated for the Korean economy is reflected in the projected growth rate for technical manpower at an average of 18% p.a.

2.08 In order to test the implications of alternative manpower demand and supply assumptions, the mission has attempted a simple sensitivity analysis. It has assumed that technical manpower requirements between now and 1981 would drop to half the projected levels. This would correspond to a reduction of real GNP growth from an anticipated annual average of 10.3% to slightly under 7% for the original planning period 1972-81, or to about 5% for 1974-81. At the same time the supply projections for trained manpower have been revised upwards to reflect (a) an increased output of technicians resulting from the conversion of the 5-year higher technical schools to 2-year technical junior colleges and (b) a greater supply of skilled workers due to increased capacity in the technical high schools and the vocational training institutes. The results are as follows:

Requirements for Technical Manpower, 1974-81
(in '000s)

	Cumulative Requirements		Cumulative Supply		Surplus (+) or Deficit (-)	
Category	Original	Sensitivity Estimates	Original	Revised Estimates	Original	Sensitivity Estimates
Scientists/ Engineers	110	55	155	155	+45	+100
Technicians	210	105	61	85	-49	-20
Skilled Workers	1701	850	408	540	-1293	-310

Source: MOST and mission estimates.

2.09 According to the original projections the supply capacity of the education and training system would exceed the needs for scientists and engineers, but deficits for technicians and skilled workers were anticipated. This conclusion would call for an expansion of specific segments of the education and training system as well as for qualitative improvements to keep pace with the increasing complexity of industrial occupations. Measures would be required by the Government to curtail the supply of scientists/ engineers and to facilitate the occupational transfer of surplus graduates. However, the possibilities of effective enrollment control by the Government are presently limited due to the prevalence of private institutions at this level (which account for almost three quarters of college and university enrollments) over which it exercises only a limited amount of control.

2.10 According to the sensitivity estimates the surplus of scientists and engineers would more than double. In the case of technicians, the reduced deficit of 20,000 technicians could be partly made up by downward substitution from the scientist/engineer level. However, in specific sectors such as fisheries and merchant marine, such substitution possibilities appear to be limited. At the skilled workers level the anticipated deficit, while greatly reduced, would still seem to warrant an expansion of the corresponding segments of the education and training system. To sum up, even with economic growth well below the Government's expectations, the proposed limited expansion appears to be justified.

2.11 The foregoing analysis points to the main dilemma inherent in all manpower projections and related estimates of education requirements, namely, their dependence on projections of sectoral output that rarely encompass a time horizon of more than five - seven years, whereas investment decisions in the education and training system result in "outputs" with a worklife of 40-50 years. One possible response to this dilemma is to complement the comparatively inflexible formal education and training system by an array of non-formal training modes, such as the vocational training institutes. These would permit a prompt reaction to incipient specific manpower shortages and surpluses, due in part to the short duration of the training but also to its integration with other Government activities in the field of labor resulting in more intensive contacts with industrial establishments. Recent modifications of the Industrial Training Act, to become effective in 1975, will delegate a large share of skill training activities to private enterprises as a further important step towards such a complementary system (see Appendix II, para 33).

III. THE EDUCATION AND TRAINING SECTOR

Summary Evaluation

3.01 The Korean education system is comprised of the following cycles: primary education (grades 1-6), junior secondary education (middle schools, grades 7-9), senior secondary education (high schools, grades 10-12) and post-secondary education in junior colleges (grades 13-14) or colleges and universities (usually 4 years, grades 13-16) (Chart 9083). This formal education system under the Ministry of Education (MOE) is complemented by several vocational and technical training schemes for which the Office of Labor Affairs (OLA) in the Ministry of Health and Social Affairs is responsible.

3.02 The education and training sector has a sound basis for development:

(a) relatively high enrollment ratios 1/ at all levels (97% in primary, 69% in junior secondary, 32% in senior secondary and 8% in higher education) (Chart 9084);

(b) high internal efficiency, (92% of the entrants at primary level, 95% in junior secondary and 93% in senior secondary education complete the cycle without delay);

(c) low recurrent expenditure per student (about US$25 at primary, US$35 at lower secondary and US$60 at upper secondary) mainly due to economical average class sizes;

(d) a substantial proportion of students in vocational or professional courses in senior secondary (43%), and university (48%) education;

(e) a satisfactory level of employment of graduates (nearly two thirds of terminal students in technical high school and three fourths of junior technical college graduates found immediate employment in 1973 in the fields for which they were trained);

(f) moderate regional and rural/urban enrollment differentials at the basic education level (see Annexes 2 and 3); and

(g) an increasing number of non-formal vocational training programs supplementing the formal education system accompanied by a closer cooperation between schools and enterprises.

3.03 Weaknesses include imbalances in the educational structure which are expected to result in manpower deficits at the skilled worker level and for certain categories of technicians (and conversely, an oversupply of scientists and engineers) during the period 1974-81 (see paras. 2.08-2.11). Further shortcomings are inappropriate curricula and lack of suitable equipment and specialized facilities in technical secondary education, particularly in the private school segment which accounts for 53% of the 428,000 students enrolled. Teachers in technical high schools receive an insufficient amount of practical training relative to the complexity of their future tasks in workshop instruction. The combined effect of these weaknesses is an overly theoretical approach to technical education in most schools. As a result, many school leavers do not have the necessary practical skills expected of them in their jobs as skilled workers.

1/ Enrollment ratios include overage students except for primary education. For purposes of international comparison, see the Comparative Education Indicators preceding Annex 1.

Education Development Objectives

3.04 Education planning in Korea, apart from the annual budgeting process, has been done both as a long-range perspective planning exercise embodied in the Long-Range Comprehensive Educational Plan 1968-86 (CLEP) and as a part of the Five Year Development Plan (1972-76). The latter attempts to formulate concrete investment decisions within the broad framework of the long range plan.

3.05 The main thrust of educational development at primary and middle school levels is to provide good quality education while maintaining the present high level of cost-effectiveness. At the high school and post-secondary levels particularly in technical fields, investment decisions follow manpower requirements. As in the case of primary education, quality and internal efficiency are supplementary objectives.

3.06 Some recent policy measures in the field of education and training are aimed at increasing the supply of technicians and skilled workers through a conversion of the five-year higher technical schools (Gr. 10-14) to two-year junior technical colleges in response to a covenant in the Credit Agreement (394-KO) for the second education project, and the partial delegation of vocational training responsibilities to private enterprises. Various steps to strengthen co-operation between industry and the education and training system (such as the creation of a special office in MOE and the introduction of industry practice for students) are intended to enhance the external relevance of the education and training system, as are changes in secondary education curricula, generally in the direction of an increased proportion of practical subjects.

3.07 The future aims of the Government in the field of education and training are broadly:

(a) to extend the period of compulsory education to nine years and to combine the present primary and middle school cycles, while giving them a stronger practical orientation;

(b) to permit a selective expansion of senior secondary education, particularly of technical high schools, in accordance with perceived manpower needs while continuing quality improvements (Annex 4);

(c) to control expansion of post-secondary enrollments (Annex 4);

(d) to increase the flexibility of the education and training sector through the addition of non-formal training schemes, with an active participation of the private enterprises.

The imminent preparation of the next Five Year Development Plan (1977-81) will provide an opportunity for confirming recent trends in education and training and for setting new targets within this broad framework.

3.08 The proposed project would contribute towards overcoming the weaknesses of the education system (para. 3.03)1/ by increasing the supply capacity for skilled workers and by improving the quality of their instruction, and by giving support to technician training in specific fields where manpower shortages are anticipated. The government has agreed to develop and implement a new curriculum for technical teacher training with greater emphasis on workshop practice (para 4.05).

Financing Educational Development

3.09 Over the last nine years, education expenditures in constant 1970 prices by the MOE have increased at an annual rate of 18.4%, slightly faster than the central government budget (17.0% p.a.). The 1973 budget of the MOE (Annex 5) stood at Won 126 billion of which Won 118 billion were for educational expenditures. Together with the financial contributions of the lower levels of government (Won 25 billion), and of the private sector (estimated at Won 57 billion), total education expenditure reached just over Won 200 billion, or 4.1% of GNP. 2/

3.10 Tentative projections for education expenditure in constant prices in 1976 and 1981 are given in Annex 6. They assume an increase in education and training expenditures from the present level of about Won 200 billion to Won 250 billion in 1976 and Won 310 billion in 1981, which would amount to 4.2% and 3.1%, respectively, of the projected GNP. These figures do not suggest the emergence of an education financing problem.

IV. THE PROJECT

4.01 The proposed project would pursue the following main objectives:

(i) meet manpower requirements at the skilled worker and technician levels for specific economic sectors, while improving the quality of instruction in the respective segments of the education system (see paras. 2.08 to 2.11 and 3.03);

(ii) lay a sound basis for a flexible, employment-oriented system of non-formal vocational training (see para. 2.11);

(iii) assist from the perspective of manpower development the Government's policy of geographic deconcentration of industries (see para. 2.04).

1/ The quality improvement process would not yet comprise private technical secondary schools as the preparation of one relevant project item (centralized workshops) was still incomplete by the time of appraisal.

2/ For purposes of international comparison, see the Comparative Education Indicators preceding Annex 1.

4.02 The project items (with their locations shown on the map at the end of the report) would be as follows:

Item (in brackets grades)	Enrollment Capacity[1] Existing	Added	Total	Capacity Increase for Level /Branch (in per cent)	Additional Output per annum
Ministry of Education					
(a) Construction of and equipment for:					
- one new technical high school (10-12)	0	1,980	1,980	0.5	660
(b) Extensions to and equipment for:					
- three agricultural junior colleges (13-14)	1,800[2]	600	2,400	11.2	300[3]
- one fisheries college (13-16)	980	180	1,160	18.4	50
- three fisheries high schools (10-12)	3,140	1,080	4,220	19.6	350
(c) Equipment for:					
- one merchant marine junior college (13-14)	960[2]	640	1,600	36.4	320[3]
(d) Technical assistance for teacher training and preparatory technical studies					
Office of Labor Affairs					
(e) Construction of and equipment for:					
- seven vocational training institutes (n.a.)	0	2,520	2,520	30.6	3,800
TOTAL	6,880	7,000	13,880		5,480[3]

[1] figures approximate.
[2] including students in grades 10-12 which will be discontinued.
[3] excluding output increases due to change from five- to two-year program.

4.03 A tracer system would be established by the Government in the project institutions to collect information on: (a) the employment status of graduates, one month, six months and one year after leaving school, including data on occupation, sector and place of employment and (b) skill

attainments of graduates as measured on performance in license and trade tests. Information from the tracer system would be used (a) to ascertain whether the objectives of the project, as summarized in para 4.01, are being attained, and (b) to identify weaknesses in curricula and teaching methods which need improvement. During negotiations the Government agreed that such a system would be established and that a summary analysis of the relevant information would be sent to the Bank annually for five consecutive years in accordance with an agreed schedule.

The Project Items:

A. Ministry of Education (MOE)

Technical High School (proposed outlay: US$4.2 million)

4.04 The new technical high school at Iri would concentrate on mechanical and electrical engineering and plumbing courses to support the industries to be established nearby in a new industrial complex. The school would use facilities vacated by a university, most of the buildings still being in satisfactory condition. The planned enrollment would be just under 2,000 and the annual output 660.

4.05 The 80 technical teachers needed for this school would have to attend an intensive in-service training course, centering on workshop practice, to bring their teaching skills to an acceptable level. During negotiations the government agreed that an intensive in-service training program on practical work would be carried out for the technical teachers of the new Iri Mechanical Technical School within two years after signing the Loan Agreement. In addition, the curriculum for the pre-service training of technical teachers should be strengthened in its practical content (paras 3.03 and 3.06), which would require additional facilities and equipment. The Government also agreed that (a) within one year after signing the Loan Agreement, a new curriculum for the pre-service technical teacher training course would be developed and sent to the Bank for comment; (b) within three years after signing the Loan Agreement, this curriculum would be implemented in the existing industrial education departments of university colleges of education and (c) the Government would make arrangements to provide the additional facilities and equipment required for implementation of the new curriculum. Technical assistance totalling 12 man/years for the training of technical teacher-trainers would be arranged by the government within nine months after signing of the Loan Agreement.

Agricultural Junior Colleges (proposed outlay: US$2.9 million)

4.06 The ongoing process of diversification in Korea's agriculture, the increasing complexity and capital-intensity of the technologies employed, and agro-industrial development call for better trained personnel, particularly at the intermediate level. Earlier Bank Group lending (paras 1.01 - 1.02)

assisted the training of agricultural technicians through investments in three of the six public junior colleges of agriculture. The proposed project item would consist of equipment and construction for minor extensions to the existing facilities for the remaining three public junior colleges of agriculture. Each junior college would eventually enroll 800 students, compared with about 600 at present. Due to the remote location of the colleges, boarding facilities would be required for 13%, 10% and 25% of the student body at Yesan, Sangju and Suncheon, respectively. The two colleges at Yesan and Sangju would need more farmland for practical work. During negotiations, the Government stated that over 5 ha of easily accessible farmland had been allocated to each college.

4.07 The junior colleges train technicians in agronomy, livestock (animal science), horticulture, forestry, agricultural civil engineering, farm machinery, filature, sericulture, home economics and food processing. Because of the conversion from five-year to two-year programs (para 3.06) a revision of curricula to suit better the specific training needs of technicians was required. The Government has just completed this work, and the revised curricula are satisfactory.

4.08 About 50 teaching staff would be needed in each institution. The present supply of university trained teachers is adequate, but some in-service training would be necessary to familiarize the present teaching staff with the new curricula. A fellowship program of eight man-years for teaching staff of the agricultural junior colleges would be arranged by the Government within nine months after signing of the Loan Agreement.

Fisheries College (proposed outlay: US$2.7 million) and Fisheries High Schools (proposed outlay: US$2.3 million)

4.09 Between 1974 and 1981 the country plans almost to double its fishing fleet to permit a broadening of the nutrition base of the population and to increase foreign exchange earnings. Since expansion will be particularly marked in the category of deep-sea vessels, skilled manpower needs will increase substantially (Annex 7). The project would finance extensions of physical facilities and equipment for the only existing fisheries college at Busan, and for three of the nine existing fisheries high schools (at Jumunjin, Pohang and Geoje), all at the east and southeast coast of Korea where most of the country's fishing fleet is based. The expanded fisheries college would have an output between 1974 and 1981 of 1,720 graduates in fishing, marine engineering, processing, aquaculture, fisheries management and fisheries education, or 80% of the total expected output. 1/ The three fisheries high schools would produce during the same period, 4,000 graduates in fishing, marine engineering, communications, aquaculture, processing and naval architecture, over 40% of the total output at this level.

1/ Including graduates trained by the Department of Fisheries, Cheju University.

4.10 About 90% of fisheries college graduates become licenced navigators, engineers and radio operators. Total output up to 1981, increased to 10,600 by the second and proposed third project, would meet about 80% of the expected demand. The remaining deficit of about 3,000 could be met from merchant marine school graduates. The 20 additional staff for the Fisheries College would be recruited from the ranks of the college's graduates. The specialist teachers for the fisheries high schools would be graduates of the Fisheries College and Cheju University. The Geoje Fisheries High School would include a specialization on naval architecture with 540 students to train draughtsmen for the planned shipbuilding center at Geoje, the country's second after Ulsan.

Marine Junior College (proposed outlay: US$0.9 million)

4.11 Korea's merchant marine fleet is planned to become an important source of foreign exchange earnings (5% of the total by 1981). To realize this goal, a rapid increase is required in the number of vessels and, in specialized manpower. To facilitate this, the project would include financing of equipment for the Mokpo Marine Junior College to enable it to train better qualified navigators, engineers and radio operators.

4.12 The college would expand its enrollment from 960 1/ to 1,600 with 700 each in the navigation and marine engineering courses and 200 in the radio operators course. The annual output would increase to 350 navigators, 350 engineers and 100 radio operators totalling about 40% of the expected demand up to 1981. The Government has already started to build the required additional facilities. A new large training vessel would be desirable for this college but is not essential at present because the college has a 700-ton vessel which can be used for 120 trainees. The additional 60 teachers required for the expansion would be recruited from among graduates of the Busan Marine College.

B. Office of Labor Affairs (OLA)

Vocational Training Institutes (proposed outlay: US$14.9 million)

4.13 Korea's anticipated industrial development will require large numbers of skilled workers (paras 2.08-2.11). To assist the development of a flexible and employment-oriented system of non-formal vocational training as exemplified by OLA's existing Vocational Training Institutes (para 2.11), the project would include the establishment of seven new VTIs under the responsibility of OLA, each with 360 places and 50% boarding facilities reserved for rural students. The VTIs would be located at Chungmu, Changweon, Jeonju, Gumi, Suncheon, Pohang and Cheongju. The regular one-year courses would concentrate on meeting the requirements for skilled workers of the new heavy industries. They would comprise training related to tool and die-making, machine work, general fitting, sheet metal work and welding, plumbing,

1/ Including students in grades 10-12 which will be discontinued.

electricity and electronics (Annex 8). The program would also include upgrading and supervisors' courses. About 80% of the training would consist of workshop practice.

4.14 Since the 2,520 places would be used in 1-1/2 shifts, the annual output from the regular courses would be about 3,800. The successful precedent of the Busan VTI (so far the only one in full operation) suggests that most of the trainees would be able to pass the grade II trade tests 1/ and obtain employment related to their training. There should also be an ample supply of trainees, given the present application/admission ratio of four to one which makes it necessary to use aptitude tests as an additional selection criterion.

4.15 Instructors for the new VTIs would be provided by the Central VTI which presently graduates 210 trainees a year following a 2-year course of high standard. This would be adequate to meet the staff requirements for all VTIs presently under construction or planned. To give the VTI expansion program adequate support in curricula development and staff training, 11.5 man-years of specialists services and 17 man-years of fellowships would be required during implementation. The Government agreed during negotiations to make arrangements for such technical assistance within nine months after signing of the Loan Agreement.

Technical Assistance (proposed outlay: US$0.5 million)

4.16 During negotiations, the Government agreed that arrangements for technical assistance (Annex 9) for the proposed project (paras 4.05, 4.08 and 4.15) would be made within nine months of signing the Loan Agreement. An amount of $500,000 for engineering and technical services for the preparation of future projects has been included in the proposed project (para. 5.12).

V. PROJECT COST, FINANCING AND IMPLEMENTATION

Cost Estimates

5.01 The estimated costs and foreign exchange component of the various parts of the project are given in Annexes 10 and 11 and are summarized below.

1/ OLA performs trade testing at four levels, grades I and II combining a theoretical paper and skill tests. The tests are demanding by international comparison.

	Korean Won (Million)			US Dollars (Thousand)		
	Local	Foreign	Total	Local	Foreign	Total
Ministry of Education						
Mechanical Technical High School (one)	617	1,436	2,053	1,272	2,960	4,232
Agricultural Junior Colleges (three)	784	636	1,420	1,617	1,312	2,929
Fisheries College (one)	556	777	1,333	1,146	1,603	2,749
Fisheries High Schools (three)	463	670	1,133	955	1,382	2,337
Marine Junior College (one)	67	379	446	138	782	920
Engineering and Technical services	44	214	258	91	440	531
Sub-Total	2,531	4,112	6,643	5,219	8,479	13,698
Office of Labor Affairs						
Vocational Training Institutes (seven)	3,251	3,945	7,196	6,703	8,133	14,836
Base Cost Estimate	5,782	8,057	13,839	11,922	16,612	28,534
Physical contingencies (10.0%)	578	806	1,384	1,192	1,661	2,853
Price contingencies (27.1%)	1,781	1,964	3,745	3,672	4,050	7,722
Total, including contingencies	8,141	10,827	18,968	16,786	22,323	39,109

5.02 Base cost refers to estimated prices in November, 1974. Construction cost estimates have been derived from recent school building costs in Korea. The average cost estimated at US$120 per m^2 is comparable to construction costs in other Asian countries. Unit capital costs per place are US$5,500 for the VTIs, and US$2,100 1/ for the technical high school. These figures are reasonable in view of recent inflation which doubled unit building costs in Korea over the last two years. Utilization factors for the classrooms, workshops and laboratories of the project institutions are economical at about 80% for about 40 hours of use per week. Estimates of equipment costs are based on preliminary equipment lists prepared by the Korean authorities for each project institution, as reviewed and revised during appraisal. These estimates, which take account of the equipment already available in the institutions, are reasonable.

1/ 70% of the buildings already exist.

5.03 Physical contingencies (Annex 12) add 10% for unforeseen factors to the cost estimates of site development, construction, furniture, professional fees, equipment and technical services. A total price contingency of US$7.7 million equivalent is included for expected price escalation at the following annual rates for various components: 15% - 12% for civil works, and furniture, 11% to 7.5% for equipment and 10% for professional services. Altogether, price contingencies would amount to about 25% of the base cost of the project plus physical contingencies.

5.04 Based on detailed analysis during appraisal, the foreign exchange component has been estimated as follows: (a) site development, 15%; (b) construction and furniture, 25%; (c) equipment, 90%; (d) professional fees, 10%; (e) engineering and technical services, 83%. These percentages have been slightly increased by the effects of the recent devaluation. Including contingencies, the foreign exchange component is estimated at about US$22.3 million, or 57% of the total project cost.

Financial Plan

5.05 The financial plan proposed by the Government provides for Bank assistance to finance a part of the costs of civil works, furniture, equipment, professional fees and engineering and technical services. By a grouping of MOE and OLA project items, the project would be financed as follows:

	-------US$ (million)------			%
	Government of Korea	Bank	Total	Bank Financing
A. Ministry of Education items	5.2	8.7	13.9	63
Contingencies	2.1	2.7	4.8	56
Sub-Total	7.3	11.4	18.7	61
B. Office of Labor Affairs items	6.6	8.4	15.0	56
Contingencies	2.7	2.7	5.4	50
Sub-Total	9.3	11.1	20.4	54
Total	16.6	22.5	39.1	58

5.06 The recurrent expenditure generated by this project would amount to about 0.7 billion Won p.a. for the Ministry of Education and 0.6 billion Won p.a. for the Office of Labor Affairs in 1974 prices, or about 1% and 6% of their budgeted total recurrent expenditures in 1973 and 1974, respectively. The additional expenditures could be accommodated without undue financial difficulty to the Government within the feasible growth of education expenditures (para 3.10).

Project Implementation

5.07 Administration. The existing project unit established in the Ministry of Education (MOE) for the implementation of the first and second projects would be responsible for administration, financial control and liaison with the Bank for the MOE project items. However, it would need to be strengthened to carry out the additional work on the third project. During negotiations, the Government agreed that within one year from the signing of the Loan Agreement, at least six additional architectural, engineering and maintenance staff would be appointed to the project unit for the supervision of the design and construction of civil works, and delivery and installation of equipment.

5.08 A project unit existing in the Office of Labor Affairs in the Ministry of Health and Social Affairs for the implementation of the current VTI program would be responsible for administration, financial control and liaison with the Bank for the seven VTIs. In line with additional responsibilities it would increase the staff by adding a full-time assistant to the Project Director, a full-time project architect, a project engineer and a procurement officer. During negotiations, the Government agreed that the additional staff would be appointed in consultation with the Bank within six months after signing the Loan Agreement.

5.09 Civil works would be based on the space standards established, and equipment lists to the extent practicable on the master lists approved for similar institutions in the first and second projects. In all cases, sketch plans for civil works and major components of lists of furniture and equipment would be reviewed by the Bank before procurement.

5.10 The proposed project would be implemented in about 4.5 years, but construction and procurement of the equipment and furniture should be completed for (a) the Ministry of Education project items in about three years and (b) the Office of Labor Affairs component in about 3.5 years (Annex 13).

5.11 Procurement. Both project units would work closely with the Office of Supply, Republic of Korea for the procurement of civil works, furniture and equipment. Contracts for civil works would be awarded on the basis of competitive bidding following domestic advertising and local procedures satisfactory to the Bank, because (a) all the civil works contracts in the first and second education projects have been awarded to local building contractors and no foreign firms, although allowed to, have submitted bids and (b) there is an efficient and large construction industry in Korea. Therefore, it is expected that all of the civil works contracts would be awarded to local contractors. Furniture and equipment contracts over US$50,000 would be awarded under international competitive bidding in accordance with the Guidelines for Procurement under World Bank Loans and IDA Credits. All furniture contracts are, however, likely to be won by local contractors. Although most of the equipment contracts would be awarded to foreign suppliers, domestic manufacturers are becoming competitive in selected areas of equipment. Most of the equipment to be procured consists

of inexpensive items (i.e. with unit costs less than US$1,000) to be distributed to dispersed locations. Furniture and equipment items that cannot be grouped in packages of at least US$50,000 and with unit costs less than US$5,000 would be procured without prior Bank approval on the basis of competitive bidding advertised locally and in accordance with local procedures, which are satisfactory to the Bank. It is expected that all furniture and 20% of the equipment would be procured on this basis. Foreign suppliers are not prevented from submitting bids under local procurement procedures. Suitably qualified domestic manufacturers would be allowed a preferential margin of 15%, or the existing customs duty, whichever is the lower, over the c.i.f. price of the competing imports. Customs duties on most of the items to be procured under the project exceed 15%.

Professional Services

5.12 Design and supervision of civil works would be the responsibility of consultant firms acceptable to the Bank selected and commissioned by MOE and OLA respectively on terms and conditions satisfactory to the Bank. Korea has sufficiently qualified consultant firms to design and supervise this project. Provision is also made in the project for US$500,000 to cover the costs of engineering and technical services required to prepare future education projects.

5.13 Satisfactory implementation of the project depends on the timely preparation of architectural designs and equipment lists and on an adequate phasing of procurement. Past experience shows that selection of consultant firms is a time-consuming procedure. During negotiations, the Government agreed to select consultant firms for MOE and OLA to design the civil works of the project within four months after signing the Loan Agreement and appoint them within eight months after signing the Loan Agreement.

Sites

5.14 The site for the Iri Mechanical Technical School has been established and is suitable. Sites for the VTIs have been selected but not yet acquired. During negotiations, the Government agreed that suitable sites for the VTIs at Chungmu, Changweon, Jeonju, Gumi, Suncheon, Pohang and Cheongju would be acquired in accordance with a schedule agreed with the Bank.

Disbursement

5.15 The proposed loan of US$22.5 million would finance the foreign exchange component of civil works, professional fees, furniture and equipment, the ex-factory costs of equipment awarded to domestic manufacturers and 90% of the total expenditures for the engineering and technical services. Bank Group financial assistance would be equivalent to about 58% of the total project cost and would be disbursed to meet:

(a) 100% of the c.i.f. costs of directly imported equipment, and 100% of the ex-factory cost of locally manufactured equipment;

(b) 70% of the total cost of imported and locally procured equipment;

(c) 30% of total expenditures on civil works (including professional fees) and furniture, equivalent to the estimated foreign exchange component; and

(d) 90% of the total expenditures on engineering and technical services.

The above percentages would be adjusted as necessary to spread disbursements over the implementation period of the project and to ensure full disbursement. Savings under one category would be available to cover overruns in other categories. The estimated disbursement schedule is shown in Annex 14. Disbursement is expected to be completed by mid-1980.

VI. BENEFITS AND JUSTIFICATION

6.01 The proposed project would contribute to economic growth by providing more and better skill training in key sectors. It would help train the manpower required, both quantitative and qualitative, to support Korea's industrialization program, particularly in expansion of heavy industries, and in the development of special sectors such as agriculture, fisheries and merchant marine.

6.02 Quantitatively, the accumulated additional outputs of institutions in the project up to 1981 would be about 2,700 for technicians and about 18,000 for skilled workers. This output would meet:

(a) 3% of the cumulative supply for technicians between 1974-81, and

(b) 3% of the cumulative supply for skilled workers between 1974-81 (para 2.08).

No greater expansion of skill training can be envisaged at this time because of constraints on teacher supply and finance. The remaining deficits would be met through downward substitution from the engineer/scientist level in the case of technicians and, for skilled workers, through in-plant training and up-grading of semi-skilled workers.

6.03 Qualitatively, the project would provide improved facilities and equipment which, together with new curricula to be developed by the government, would enable more practical training and skills to be taught than at

present (para 3.03). With these improvements it is expected that the contribution of training to worker productivity would increase. A survey conducted by the Research Institute for Industrial Development of Korea indicated that, on average, (i) a worker gains 20% in efficiency from training; (ii) training brings about a significant reduction in the rate of defective work (10% to 40% depending on the industry); and (iii) the accident rate among trained workers is about half of that among untrained workers.

6.04 By supporting the country's industrial development program, the project would also make an indirect contribution towards the equalization of economic and social opportunities, and more specifically, towards reducing urban/rural income differentials. Since the unused agricultural potential of Korea is diminishing, the scope of non-agricultural activities in rural areas has to increase rapidly lest the moderate income gap between the countryside and the cities widens. The location of the new vocational training institutes follows closely the Government's policy of geographic deconcentration of industries. A more direct pursuit of the equality objective would be through a 50% recruitment quota for rural youth in the VTIs made possible by adequate boarding facilities. About 2,500 of the rural middle school leavers would benefit annually from this avenue to economic and social promotion.

6.05 The realization of these benefits would depend crucially on adequate instruction in workshop practice for the technical teachers at the technical high school and adequate technical assistance to support the establishment of the new VTIs. Arrangements for adequate and appropriate technical assistance to meet the above conditions (paras 4.05 and 4.16). The stipulated establishment of a tracer system would permit periodic checking on the achievement of the project's objectives and, in addition, provide the Government with a model for monitoring the performance of its entire education system.

VII. AGREEMENTS REACHED AND RECOMMENDATIONS

7.01 During negotiations, agreement was reached with the Government on the following principal points:

(a) the establishment of a tracer system (para 4.03);

(b) provision of an intensive in-service training program on practical work for the technical teachers of the new Iri Mechanical Technical School (para 4.05);

(c) development and implementation of a new curriculum for the pre-service technical teacher training course with additional facilities and equipment (para 4.05);

(d) arrangements for obtaining technical assistance required for the project (para 4.16);

(e) appointment of additional staff for the two project units and consultant firms (paras 5.07, 5.08 and 5.13); and

(f) acquisition of suitable sites for the seven vocational training institutes (para 5.14).

7.02 The proposed project constitutes a suitable basis for a Bank Loan of US$22.5 million equivalent to the Government of Korea for a term of 25 years including a 7-year grace period.

SUMMARY OF PREVIOUS WORLD BANK GROUP

EDUCATION PROJECTS IN KOREA

Education Project I (Credit 151-KO)

1. The first education project in Korea was signed in 1969 under Credit 151-KO with an estimated total project cost of US$26.8 million of which US$14.8 million is financed by the Credit. The principal objective of the project is the improvement of existing schools to enable them to produce well-trained people suited to the needs of Korea's growing commerce and industry, rather than a substantial increase in pupil enrolments.

2. Accordingly, the project provides urgently needed facilities to assist teaching agricultural, commercial, scientific and industrial subjects at 32 schools, one university agricultural education department, and 3 university science teacher training departments. Technical teacher training is included at 3 schools. Student enrolments in these schools and departments in 1974 totaled 33,600 which is expected to reach 36,000 on completion of the project in 1975. Consultant architectural services to carry out the school construction program and a team of specialists to assist in developing agricultural and technical education were also provided for the project.

3. Implementation is about one year behind original estimate principally due to delays in the appointment of consultants and inexperience of the project unit in equipment procurement. These causes of initial delay have now been overcome. All civil works have been completed and equipment procurement is also near completion. Further extension of the Closing Date (December 31, 1975) is not anticipated. Total project cost is now estimated at US$26.1 million which is about 3% below the original estimate. Disbursement has reached 75% of the Credit.

4. The experiences gained from the implementation of this project are as follows:

(a) the enrollment targets appear to have been achieved;

(b) the achievement of improved educational quality has not yet been demonstrated and its measurement must await the time when the equipment has been installed and used by the students for at least one full cycle of their education, i.e., three years, but there has been a visible improvement in the teaching environment in those schools with installed equipment;

(c) delays in the appointment of consultant firms are crucial; steps should be taken to avoid such delays in future projects; and

(d) the use of expatriate specialists services should be carefully weighed in comparison to the use of local expertise.

Education Project II (Loan 906-KO/Credit 394-KO)

1. The second project, under Loan 906-KO/Credit 394-KO of 1973, consists of:

(a) equipment and extensions of buildings for:

(i) 14 agricultural and 18 technical high schools;

(ii) ten higher schools/junior colleges for agricultural, industrial, fishery and nursing training;

(iii) selected colleges of agriculture, engineering, science in ten universities and a college of merchant marine; and

(iv) ten junior teacher colleges and twelve colleges of education;

(b) specialist services and fellowships for carrying out two pre-investment studies to complete programming in the fields of health and management education respectively and for assisting staff development in the project institutions at the university level.

The project institutions will eventually have a total of 44,200 student places, of which only 5,900 are new since emphasis is on the improvement of the quality of the output and on the efficiency and productivity of the sector rather than on expansion.

2. The improvement program of vocational education in the agricultural and technical high schools (grades 10-12) of the project (27,800 student places and 9,000 student places respectively) provides for the introduction of new and more practical curricula and the establishment of closer ties with the agricultural extension and with industry. In addition to their regular three-year programs, the schools will conduct accelerated training and evening courses.

3. The project will assist the reorganization of six higher schools (grades 10-14 at present) to provide two-year post-secondary technicial courses (grades 13-14) and the improvement of four schools of nursing (grades 13-15). The reorganization of the higher schools (4,720 student places)

will expand output at the subprofessional level in line with estimated manpower needs, rationalize the system and improve equality of educational opportunity since all secondary school graduates will be able to compete for entry into such higher schools. The improvement of a limited number of schools of nursing (1,200 student places) where training is geared to the needs of rural areas, together with provision for a pre-investment study on health education, will be a first step toward comprehensive development of medical and paramedical training.

4. The colleges to be strengthened as a part of the project were selected in accordance with the Government's university development plan for:

(a) improving the quality of a limited number of the 71 Korean universities, giving priority to Seoul National University and to national universities in the provinces;

(b) emphasizing relevance to regional manpower needs; and

(c) continuing enrollment control but making the present system more flexible.

The colleges of agriculture in the project (1,700 student places) will provide teaching and research support to other agriculture colleges and emphasize instruction and research in animal production and high yielding rice varieties, two fields of special significance to increased food production. In the colleges of engineering and sciences (12,000 student places) curricula will be modernized in support of the planned development of heavy and chemical industries. The college of merchant marine (800 student places) when properly equipped, will update instruction in navigation and marine engineering techniques in line with the plans to promote the shipping industry.

5. Ten junior teacher colleges for primary teacher training (8,800 student places) will be equipped to permit the implementation of a training program designed to prepare the teachers for wider responsibilities in community development and for the use of modern instructional techniques. The 12 colleges of education, equipped and expanded as a part of the project (11,200 student places) will increase the supply of secondary teachers in accord with estimated needs and promote the institutional and administrative changes required to give pedagogical training to the increasing number of graduates from other colleges (agriculture, liberal arts and sciences, engineering) expected to enter the teaching profession.

6. The total project cost is estimated at US$70.2 million and Bank/IDA assistance comprises a credit of US$20 million and a loan of US$23 million. The latest estimate of total project cost at about US$98 million represents a 40% increase over the original estimate and is mainly due to sharp increases in building costs in the past two years. After 14 months of implementation US$0.12 million has been disbursed, about 70% of the scheduled disbursements. The need for more counterpart funds from the Government may result in an

extension of the building program from two to three years and consequently a delay of the project completion by one year. The Government has been requested to provide more funds to avoid this delay.

7. Implementation is still at an early stage. Civil works for the first group of the project schools have commenced and equipment procurement, although in the preparation stage, is satisfactory. Conversion of the five-year to two-year program in higher schools is taking place as a result of the covenant requirement in the Credit Agreement. Other benefits from the project cannot be determined yet.

THE EDUCATION AND TRAINING SYSTEM

Structure

1. The structure of the education system (Chart 9083) is six years of primary education (Gr. 1-6), three years junior secondary education (Gr. 7-9), three years senior secondary education (Gr. 10-12) and four years of higher education (Gr. 13-16).

2. Only primary education is compulsory. The Government intends to introduce by the early 1980s a compulsory nine-year education. Middle schools (grades 7-9) may be integrated with primary schools after the completion of a US$7.5 million project financed by USAID and executed by the Korean Educational Development Institute (KEDI), on formulating objectives, developing curricula and reviewing the necessary changes in teacher training and the use of modern education technologies. Senior secondary enrollments are divided between general and vocational high schools in the proportion 57% to 43%. Comprehensive schools with general and vocational streams are new and account for only about one-seventh of the total enrollment at this level. Higher education consists of two levels, the junior colleges for grades 13 and 14, and the universities and colleges with most courses of four years duration for grades 13 to 16. The five-year programs in higher schools (grades 10-14) are being phased out.

3. The education system also includes trade schools (61 with some 11,000 pupils) at the junior secondary level and higher trade schools (53 with 12,500 pupies), civic schools (40 with 3,000 pupils) and higher civic schools (264 with 52,000 pupils). Sixteen primary teacher training colleges with about 13,000 students operate at the junior college level. The education system is supplemented by non-formal training which consists of farmer training centers, 4-H Clubs, rural training centers, vocational training institutes, in-plant training and correspondence courses. In the past, apprenticeship schemes have not been developed due to lack of interest from enterpreneurs, but implementation of recent revisions of the Industrial Training Law may bring a change.

4. Schools are classified as national, public and private according to their source of finance. National schools are maintained by the Central Government, and public schools by the Provinces and Special Cities, with subsidies being paid by the central authorities. The distribution of enrollments (Chart 9084) among those three categories by level of education is as follows:

Level	Percentage Enrollment National	Public	Private	Total
Primary	0.2	98.6	1.2	100.0
Junior Secondary	0.3	58.2	41.5	100.0
Senior Secondary	0.7	42.3	57.0	100.0
Higher Education	30.4	1.6	68.0	100.0

Administration

5. The responsibility for Korea's formal education rests mainly with the Ministry of Education (MOE). Other Ministries, such as Agriculture and Fisheries, Commerce and Industry, Communications, Construction, Health and Social Affairs, National Defense and Transportation, share responsibilities for training related to their work. The Office of Labor Affairs (OLA) now under the Ministry of Health and Social Affairs, however, has been delegated a large share of responsibilities for non-formal vocational training outside the Ministry of Education.

6. The Economic Development Plan is the responsibility of the Economic Planning Board (EPB), headed by the Deputy Prime Minister. In conjunction with the Ministry of Science and Technology (MOST) responsible for manpower forecasts, and MOE and OLA which are mainly responsible for short-term planning, administration and plan execution EPB also prepares long-range education and manpower development plans within the overall economic development strategy. MOE has an Office of Planning and Management to work out programs to implement educational development plans.

7. Both the MOE and OLA are well-organized and efficient administative bodies. The MOE is assisted by Boards of Education in each of the nine provinces and the two special cities. OLA is assisted by 28 regional offices located strategically in accordance with labor densities.

General Education

8. Primary Education reached 97% of the children within the age group of 6 to 11 in 1973. The total enrollment of about 5.7 million at this level is expected to decline slightly to about 5.5 million in the next six years due to low population growth (para 2.01). This natural decrease will permit more financial resources to be devoted to other levels and to quality improvements. Repeater and dropout rates are low, both under 5% p.a. Internal efficiency is high; about 92 out of 100 entering students complete the full six years of primary education. The curriculum is sufficiently broad, textbooks are available, almost all teachers are qualified (less than 1% are unlicensed) and quality is satisfactory. The average class size is 58 and the pupil teacher ratio is 53:1. Large class size is the principal factor responsible for low cost per student. The unit recurrent cost in 1973 was about US$30, low by international comparison. Primary education is compulsory

but not free; contributions to the school-support fund from Won 1,200 to 7,200 p.a. per student. However, about 60% of the students are partially or totally exempt.

9. At the junior secondary (middle school) level, there were about 1,920 schools and 1,832,000 students in 1973, reaching a gross enrollment ratio of 69%. There were still no middle schools in 380 "miens" 1/ in 1974. These miens are in remote areas, mostly islands. Primary school leavers are permitted to enter middle schools without examination if they so wish. About 70% of the primary school leavers enrolled in middle schools in 1973.

10. Class sizes average 64 students and the average pupil/teacher ratio is 43:1. Almost all teachers are university graduates. The progression rate by grade is high at about 98%. The recurrent cost per student is about US$70, low by international standards, chiefly because of large class sizes. The curriculum emphasizes academic subjects, but is being revised by KEDI under the USAID project to include more science and practical subjects and allow for the use of modern education technology including educational radio and television. This will necessitate additional facilities and equipment together with corresponding changes in teacher education. The Government realizes the importance of this re-orientation but gives higher priority to other types of education (e.g. technical high schools). Only a pilot scheme is contemplated which would test the suggested innovations and would be limited to a sample of mostly rural schools.

11. Admission to high schools is through a combination of entrance examinations and, if necessary, a lottery, should the number of successful candidates per school exceed the number of available places. In this case, however, additional factors, such as proximity to the school, are taken into account. For some vocational high schools, recommendations by the heads of the candidates' middle schools are used in lieu of examinations. About 70% of the students in the final year of middle school have in the past found places in high schools. For terminal students, about 150,000 every year, some form of non-formal education would be desirable to facilitate their transition into worklife.

12. At the senior secondary level, 839,000 students were enrolled in 1973 and the enrollment ratio was 32% of the relevant age group (including overage students). About 49% of the students were in general high schools and 51% in vocational high schools including comprehensive schools. 2/ The average enrollment growth rate between 1971 and 1973 was 11.5% (17.5% for vocational courses and only 6% for general courses). Enrollment in comprehensive schools more than doubled during that period. The government assigns high priority to both quantitative and qualitative improvements at this level,

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1/ "Mien" - a sub-district of a "Gun". A "Gun" is a county in a "Do" or Province.

2/ 57% and 43% respectively, if students in comprehensive schools are allocated by stream.

particularly for technical high schools which offer courses related to heavy and chemical industries. Plans include the establishment of public centralized workshops for private technical high schools, but the preparation work has not progressed to a stage which would permit immediate implementation.

13. The internal efficiency at this level is also high; about 93 out of 100 entering students complete the 3-year course. The average class size is 57 and the pupil/teacher ratio 31:1. The unit recurrent cost is about US$70. About 30% of the high school graduates are admitted into higher education institutions. The employment prospects of those who do not proceed to further education are good, particularly for school-leavers from vocational schools.

Technical Education

14. Technical education is insignificant at the junior secondary level. At the senior level, there is a variety of institutions which can be grouped in the following broad categories:

Type	No. of Schools	Enrollment			No. of Graduates ('000)	No. of Teachers	Teacher/ Pupil Ratio
		Total ('000)	% Female	% Private			
Technical	64	88.3	0.5	47	24.6	3,309	1:27
Agricultural	66	35.2	8	4	9.7	1,480	1:24
Fishery & Marine	9	5.5	7	26	1.2	227	1:24
Commercial	169	143.4	55	73	34.3	4,449	1:32
Comprehensive	213	67.01/1	43	56	14.51/1/2	4,436	1:29
Art	3	1.5	87	91	0.4	58	1:25
Other Vocational	39	24.5	39	26	5.7	939	1:26
In Grades 10 - 12 of Higher Technical Schools	-	15.2	5	48	-	-	-
Total	563	380.5	30	46	90.4	14,898	1:26

1/ Students in vocational courses only.

2/ Estimates.

Source: Ministry of Education.

15. The present policy on curriculum is to introduce more flexibility by allowing students electives up to one third of the total school time compared with 20% or less at present. About 70% of the curriculum is for specialized subjects and slightly over 40% for practical training. This

provides about 2,000 hours of practical work in three years, a satisfactory length of time in which to acquire prescribed skills. The actual practical training periods in most schools are less than foreseen in the curricula, mainly due to lack of equipment. Required equipment is gradually being procured, delivered and installed in public technical high schools with the assistance of the World Bank. An emerging constraint for achieving high quality training appears to be the quality of technical teachers. Teachers presently receive only a total of 1,000 hours of instruction in practical work themselves during pre-service training (Gr. 13-16), and will probably be unable to supervise the students effectively in the more complex exercises.

16. Relationships between schools and industry are now being strengthened. A new section has been established under the Science Education Bureau of MOE. Students in technical high schools are normally required to work in industry for about six months if places are available in nearby factories.

17. Employment prospects of graduates are good. About 70% of the graduates are absorbed by related industries; about 30% proceed for further studies and military service. A few selected technical high schools follow a special curriculum with about 70% of weekly time spent on practical work. Their graduates receive about 3,000 hours of training and almost all find industrial employment soon after graduation at attractive starting salaries.

Agricultural Education

18. Agricultural education in Korea is organized in a three-tiered system consisting of agricultural high schools (Gr. 10-12); agricultural junior colleges (the former agricultural higher schools Gr. 13-14) and the agricultural faculties at the universities (Gr. 13-16). The relative decline of agriculture as an employer and contributor to GNP in recent years has been reflected in a decline in the number of agricultural high schools and a stronger emphasis on agro-industrial components in all agricultural education. The number of schools has fallen from 133 in 1962 to 66 in 1973. Total 1973 enrollment was 35,200 with 9,700 graduates. A further decline in school numbers is predicted while total enrollments in three levels are expected to stabilize. Non-formal agricultural education efforts center on the farmer training centers run by ORD 1/ and on OLA's rural vocational training centers. The latter also encompass pre-vocational training for rural youth, as a means to facilitate their transition to an industrial work life.

19. The public agricultural higher schools (Gr. 10-14) are being phased out and coverted to two-year agricultural junior colleges (Gr. 13 - 14). Only one private higher school will continue its present program. Three of these junior colleges were assisted by earlier Bank Group loans. Total enrollment at these schools in 1973 was 5,350. Of these students,

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1/ ORD - Office of Rural Development.

1,020 were in the first year of the new two-year program. During the transition period all available space vacated by graduates of the five-year program will be utilized by intake for the new junior college program. Total enrollment in the six public junior colleges is expected to rise to 4,600 by 1976 and to a maximum of 6,200 by 1978. In 1973, 29 colleges and universities with 108 departments enrolled 10,300 students and produced 2,300 graduates. About 300 students were enrolled in graduate programs.

20. The system of agricultural education shows signs of imbalance. The two well-developed layers of university and high school education both produce surpluses of graduates, while the middle level (junior agricultural colleges) lags behind in development - both in size (a deficit of agricultural technicians is expected to persist through the period 1972-81) and in quality (as evidenced by inadequate facilities and equipment). Curriculum revision and teacher up-grading are considered essential for successful conversion of the agricultural higher schools to junior colleges.

Fisheries and Merchant Marine Education

21. Fisheries education institutions exist as three levels. The nine fisheries high schools 1/ (Gr. 10-12) enrolled 5,500 and graduated 1,200 in 1973 with courses in fishing, marine engineering and communications; a fisheries junior college (Gr. 13-14) enrolled 2,900 and graduated 3,600 in 1973 is to be joined in 1975 by three more such institutions which are presently operated as higher fisheries schools, offering also courses in fishing, marine engineering and communications. Eleven fisheries departments in colleges and universities enrolled 2,000 students and graduated 420 in 1973, with courses in aquaculture, fishing, food product processing, marine biology, marine product, fisheries management, marine engineering, navigation and communications.

22. There are two merchant marine junior colleges (Gr. 13 - 14) and one college (Gr. 13 - 16) with three departments each, viz.,: navigation, marine engineering and communications. Enrollments and outputs are included in the figures for fisheries education. The graduates from the two levels are to some extent interchangeable. The education qualifications required for fisheries and merchant marine personnel vary with the range of operations and the size of vessel (Annex 7).

Teacher Training

23. Primary school teachers are trained in two year courses (Gr. 13 - 14) at 16 junior teachers training colleges (Gr. 13 - 14). Recent outputs, slightly under 6,000 p.a., have exceeded available teaching positions due to a declining primary enrollment. Enrollments will therefore be curtailed from 12,700 in 1973 to about 9,700 in 1976, thereby reducing the output to about 4,700, adequate to meet requirements for attrition and some reduction in class sizes. Generally, the curriculum is balanced by group of

1/ Plus one comprehensive high school with fisheries courses.

subjects. The standard of training is acceptable and will be further improved as a result of the second education project with additional equipment.

24. Secondary school teachers are trained in four year courses (Gr. 13-16) in 207 education departments of universities and colleges. The enrollment was 23,000 and the output, 3,000 in 1973. In view of middle and high school enrollment projections (Annex 4) and the fact that university graduates with some additional pedagogical training can reasonably substitute for regularly trained teachers, the Government has assigned low priority to further quantitative expansion in this sub-sector of education.

25. Technical teacher training is carried out in industrial education departments of eleven university faculties of engineering. The annual supply from these regular courses is 225 at present, but is expected to grow to 440 by 1978. The stock of technical teachers in 1973 was 2,200 with a shortage of about 1,400. Estimated additional requirements for technical teachers up to 1981 are about 2,000 for expansion and 500 for replacement. Total supply over this period falls short of the total anticipated requirements of 3,900 by about 1,200 but this shortage could be met from the expected continuing surplus of engineer college graduates. The technical teacher training curriculum contains only about 1,000 hours of practical work in the four-year course for acquisition of skills, and (as pointed out in para 15), this seems to be inadequate for teaching skills to students in a program totalling about 2,000 hours of training and encompassing complex operations in its final stage. The Government has become aware of this shortcoming and plans to revise the curriculum by introducing increased practical content and by providing the additional facilities and equipment required.

Higher Education

26. Twelve junior colleges operate two year courses (Gr. 13 - 14), enrolling 4,250 students in 1973. Ten nurses training schools gave three-year courses to 2,410 students (down from 5,330 in 1971) and graduated 1,730 nurses in 1973. The five year courses in higher schools are being phased out except a few private ones.

27. The 70 technical junior colleges (Gr. 13-14) which train technicians, enrolled 41,000 students 1/ in 1973, i.e., the majority of students (71%) at junior college level. The output is expected to increase from 6,300 in 1973 to some 20,000 after completion of the changeover in about 1977 from five to two-year programs. However, the expanded output still appears to be insufficient when compared with the MOST manpower requirements projections up to 1981.

1/ Including students in grades 10 to 12 under the 5-year programs.

28. The 14 national, one public and 54 private universities (Gr. 13-16) enrolled 158,000 students (excluding 9,500 graduate students) and graduated 28,800 in 1973 in the following disciplines:

Schools	Undergraduate enrollment 1/ (in 1,000)	In %	Output (in 1,000)	Enrollment in graduate studies (in 1,000)
Natural Sciences	14.3	9	2.6	0.6
Engineering	33.4	21	6.1	1.0
Agriculture and Forestry	10.3	7	2.3	0.4
Fishing and Marine	2.0	1	0.4	0.0
Medicine and pharmacy	14.8	9	2.2	1.3
Teacher Education	22.3	14	3.1	1.5
Social sciences	31.9	15	7.3	3.3
Humanities and others	29.0	24	4.8	1.4
TOTAL	158.0	100	28.8	9.5

1/ Excluding all junior colleges, nurses training schools, etc.

29. The Government's present policies on higher education are: (a) controlling expansion, (b) designating selected universities for specialization, (c) improving college-industry relationships and (d) spacing work experience with academic training (e.g., sandwich courses) wherever feasible. The Ministry of Education is responsible for the implementation of these policies. For the immediate future large-scale capital investment is therefore considered inappropriate. Improvements may be necessary in the priority fields of health and management education, but investment needs to await the results of ongoing pre-investment studies.

Non-Formal Training

30. The 61 trade schools (Gr. 7-9), 53 higher trade schools (Gr. 10-12) and 74 miscellaneous schools (no grade specification) operated by MOE offer a variety of courses including abacus, baking, barber, cosmetics, confectionery, tourism, etc. Total enrollment in all three categories is about 30,000. In 1973 about 4,600 students completed courses in "trade schools" and "higher trade schools" and 7,000 in "vocational schools for young men". The radio and correspondence junior colleges enroll about 24,000 students. About 174,000 are attending private institution training courses, of which over 50% are art, clerical and physical exercise courses.

31. The Office of Labor Affairs (OLA) in the Ministry of Health and Social Affairs has the main responsibility for non-formal vocational training. OLA operates a well-equipped and well-staffed Central Vocational Training Institute (CVTI) at Incheon under a UNDP/ILO project with 430 students attending the

two-year regular course for instructors and an output of about 210 per annum. The training standard in skills is high and graduates are qualified to become shop instructors. The total enrollment at CVTI is about 8,000, including 6,800 students in correspondence courses for those who wish to take the theory section in trade tests. OLA also runs another well-equipped and well-staffed Vocational Training Institute (VTI) in Busan with German aid. About 210 are attending the regular one-year skilled worker courses and 350 the three-month retraining courses. The training standard in skill is also high. Courses conducted by CVTI and the Busan VTI are much in demand as evidenced by the application/admission ratio of four to one which makes it necessary to use aptitude tests as an additional selection criterion. There is close cooperation between the VTIs and industry. The Asian Development Bank extended a loan of US$3.7 million in 1973 for the construction and equipment of five VTIs with a total capacity of 5,160. The first two are due to be completed in 1974 and start courses in September, 1974.

32. The present government policy is to emphasize non-formal training outside the MOE, especially at the skilled workers level. About 0.8 million of the 1.7 million skilled workers needed between 1973 and 1981 are planned to be trained through OLA from new VTIs and in-plant training centers. For this purpose, 62 public VTIs (38 urban and 24 rural) and 818 in-plant centers are being planned. The feasibility of the plan depends on availbility of funds and instructors. Within this framework, ten additional public VTIs are planned to be established with external aid before 1980 with a total capacity of about 6,000 and an output of about 9,000 per annum. The seven proposed VTIs in the project would form a part of these ten. They will be located close to new industrial complexes and will include boarding places for rural trainees in agreement with the 50% enrolment quota for their group.

33. The vocational training law passed in January 1967 was amended in March 1973 together with a Special Law for Vocational Training to oblige firms with more than 200 workers to give training to at least 15% of their total number of employees. This legislation, which will become effective on January 1, 1975, marks a shift towards a greater involvement of private enterprises in vocational training activities. It will introduce a much greater degree of flexibility into the process of industrial skill acquisition, both in terms of the volume of training operations and the orientation of training programs.

Education Finance

34. Financial responsibility for education is shared by the Central Government, the provincial and local (city, county) authorities and the private sector. Educational institutiones are classified according to the mode of their financing:

(i) national institutions are financed entirely by the Central Government;

(ii) public institutions are financed by the lower levels of Government with more than 75% of the costs being met by Central Government transfers; and

(iii) private institutions are financed mainly from non-governmental sources with minor government subsidies.

35. Over the last nine years, education expenditure at constant prices by the MOE have increased at an annual rate of about 11% compared to a growth of the Central Government budget of about 10% p.a. The 1973 budget of the MOE stood at Won 126 billion of which 118 billion were for educational expenditure. Together with the financial contributions of the lower levels of government (Won 25 billion) and of the private sector (estimated at Won 57 billion), total education expenditure was just over Won 200 billion, or 4.1% of GNP.

36. The composition of the recurrent expenditure by level of education is as follows: primary education 65%; lower secondary 17%; upper secondary 20%; and post-secondary 8%. The relatively high share of primary education expenditure is explained by the virtually universal enrollment attained.

37. Since in the coming years somewhat smaller cohorts will enter primary education, one can expect a gradual shift in the percentage distribution of recurrent expenditure towards the post-primary levels, particularly lower and upper secondary education, brought about by enrollment increases and quality improvements.

38. Capital expenditures over the last six years have averaged 20% of total expenditures, ranging from 8% for colleges and universities to almost 23% for primary education. The latter high figure is due to the investments required to achieve universal primary enrollment. Future allocations should be expected to show a reduced percentage for primary, and increased shares for post-primary levels.

COMPARATIVE EDUCATION INDICATORS

Comparative education data are useful in the evaluation of various education systems and the analysis of relative stages of educational development between various countries. However, on the basis of the present data, cross-national comparison should be approached with great caution. Data presented in the following table have been collected largely by the Bank missions from government sources; the remainder from Unesco. Efforts have been made to standardize definitions and, within limits, to check the accuracy of the data. Nevertheless, such data are still imperfect in several respects and the Bank is working to improve them progressively on the occasion of its operational work. In the use of these data, the following qualifications should be borne in mind.

1) "Education" as defined in the table includes all education and training, formal and non-formal;

2) "Primary" education refers to education at the first level and "secondary" education refers to all education at the secondary level regardless of type (e.g., general, technical, agricultural);

3) "Vocational" education (Col. 10) includes enrollments in technical, commercial, agricultural, vocational and home-economic courses;

4) "Literacy rates" (Col. 3) are usually obtained from country censuses. In many countries they are only approximations and it is doubtful that any uniform definition of "literate" has been followed consistently;

5) "Public expenditure in education" (Cols. 4 & 6) refers to all capital and recurrent expenditures devoted to education by public and quasi-public agencies;

6) "Enrollment ratios" (Cols. 7 & 9) refer to school year and mean the percentage of eligible children enrolled full-time in the appropriate schools, public and private by level. They are often subject to a wide margin of error in the developing countries owing to variation in the accuracy of basic data (i.e., age-specific population and enrollments). Enrollment figures frequently are higher than the number of students actually in school. Overaged students whose inclusion is indicated by footnotes also can inflate the ratios.

		Population (Millions) (1)	GNP/CAPITA at market prices (US$) (2)	Literacy Rate (% of Adults) (3)	Public Education Expenditures Per Capita (Market Prices US$) (4)	% of GNP Devoted To Education (Public Expenditures only) (5)	% of Total Public Expenditures Devoted to Education (6)	Primary Enrollment Ratio Net (7)	Primary Students per Teacher (8)	Secondary Enrollment Ratio Net (9)	% Secondary Enrollment in Vocational Schools (10)	Secondary Students Per Teacher Full-Time Equivalent (11)	% Higher Enrollment in Agriculture and Engineering (12)	Annual Output from Higher Education Per 100,000 Population (13)
ADVANCED														
Austria	1973	7.5 H	2,410 H	99	148	4.3	9.9	98	26	51	14	19	22	10
Canada	1971	21.8 H	4,440 H	98	352	8.2	21.1	98	24	82	...	17	9	630
Germany, Fed. Rep.	1971	61.6 H	3,390 H	99	149	4.2	14.2	91	33	91	30	22	19	211
Japan	1971	106.9 H	2,320 H	99	11	4.3	20.7	99 J	25 J	94 J	41 H	20	22	415
Netherlands	1971	13.3 H	2,840 H	99	216	7.7	17.0	95	29	70	40	19	25	230 E
New Zealand	1972	2.9	2,560	99	174	5.4	16.5 G	99	27	67	16	19	17	350
Norway	1970	3.9 H	3,340 H	99	169	6.7	17.5	99	23	71 E	22 E	16	22	64 C
Sweden	1970	8.1 G	4,480 H	99	311	9.0	15.0	100	18	88	51	14	14	240
United Kingdom	1970	55.8 H	2,600 H	97	94	5.8	13.8	98	28	58	5 C	18	16	188 E
U.S.A.	1972	208.8	5,590	99	332	6.0	15.4	99	25 U	93	...	19 U	...	57
EUROPE														
1. Greece	1971	8.9 H	1,460 H	82 E	23 E	2.2	9.3 E	99 E	33 E	59 E	16 E	31 E	14 E	86 F
2. Ireland	1972	3.0	1,580	98	58	5.1	14.8	97	35	75	22	19	12	154
3. Spain	1970	34.3 H	1,100 G	94 D	20	2.4	12.5 E	91	35	29	22 C	30	19	31 C
AFRICA														
1. Algeria	1971	14.2 H	430 H	25 B	34 F	9.0 F	29.8 F	64	40	13	18	26	6	22
2. Cameroon	1970	6.0 H	200 H	...	6	3.0	20.0	74	48	8	23	25	4	7
3. C.A.R.	1970	1.6 H	160 H	...	5	4.0 N	20.0	73 X	64	4 X	18	30	...	...
4. Chad	1970	3.8 H	80 H	7	3 D	4.3 H	14.3 D	33	72	2	8	30	...	...
5. Congo (B)	1970	1.1 H	300 H	50 ?	14	2.8	23.2	80 X	59	13	10	28	...	...
6. Dahomey	1972	2.8	110	11 F	6 J	5.0 J	28.85	32 X	46	5 G	3	29	...	...
7. Ethiopia	1972	25.9	80	7	9	2.8	20.0	17	51	5	3	35	10	4
8. Gabon	1973	0.5 H	88 G	...	33	5.0	22.0	...	46 G	20 H	13 H	21 H	...	...
9. Ghana	1970	9.1 H	300 H	...	13	4.7	21.7 Q	74	29	8	4	18	15 E	13 E
10. Ivory Coast	1968	3.4 H	340 H	9 A	10	4.2 C	20.4	44	46	6	8	23	...	...
11. Kenya	1970	12.1 H	170 H	30 D	8 H	5.3 H	20.0	64	34	10	2	22	29 D	5 A
12. Lesotho	1973	0.9 H	90 H	40	4.1	4.7	22.0	65	45	8	1	22	10.1	0.04
13. Liberia	1970	1.6 H	250 H	15	8	3.7	11.7	50 X	31	12 X	6	16	12 C	9 C
14. Mali	1972	5.2	80	10	3	4.6 N	32.3	18	40	4	6	17	36	5
15. Mauritania	1970	1.2 H	180 H	10	2	4.5	21.0	15 X	22	3	13	24	15	...
16. Mauritius	1972	0.8	300	80	11	2.7	11.7	86	31	30	2	30	...	55
17. Morocco	1970	15.8 H	270 H	20	9	4.1 N	17.4	54	35	12	3	22	3	7 A
18. Nigeria	1971	69.5 H	130 H	...	3	3.2 N	...	34 X	37	4	18	23	16	6
19. Senegal	1971	4.0 H	260 H	10	11 F	4.0 N	25.1 H	38 X	46	11 X	8	25	2 C	12
20. Sierra Leone	1968	2.7 H	190 H	27	4	3.8	19.5 C	32	31	13	7 C	25	22	9 H
21. Somalia	1973	2.9 H	80 H	5	2	...	7.0	13	35	4	2	25	14	1
22. Sudan	1972	16.5 H	170 H	15	6	4.5	13.2	38	45	9	3	20	17	23
23. Swaziland	1972	0.44	260	28	18	4.3 F	19.7	88	38	18	4	20	0	0.05
24. Tanzania	1971	13.6 H	120 H	...	4	4.5	16.4	37	45	2	6	29	11	3
25. Uganda	1970	10.4 H	150 H	25 A	6	3.2 N	24.3 Q	46 EU	36	4 U	11	21	10	5
26. Upper Volta	1972	5.6	70	5	2	4.0	27.6	10	45	2	5	23	6	1
27. Zaire	1970	19.1 H	100 H	13	8	3.7 N	19.0 E	78	44	8	20	24	10	2 B
28. Zambia	1971	4.5 H	380 H	43	28	5.6	17.4	80 X	50	12	5	17	8	2
C.AMERICA AND CARIBBEAN														
1. Costa Rica	1971	1.8 H	630 H	89	30	5.2	22.7	84	29	26	8	25	11	
2. Dominican Rep.	1972	4.2	480	51	11	2.5	8.4	80	54	13	7	24	22	...
3. El Salvador	1971	3.7 H	340 H	58 YA	9	3.2	26.6 Q	69	37	16	18	...	24	8
4. Guatemala	1968	5.6 H	470 H	38 YA	6 B	2.5 B	17.6	43	38	6	22	26	10	6
5. Honduras	1972	2.7	320	52	11	3.9	18.2	81 X	37	14 X	17	14	8	4 E
6. Jamaica	1969	1.9 H	810	86	24	4.4	19.1	86 X	52	43	9 A	19	...	11 A
7. Mexico	1970	54.1 H	750 H	76	18	2.6	17.1 Q	77	46	16	23 C	23	26 C	22
8. Nicaragua	1968	2.1 H	470 H	53	10	2.4	19.8	80	36	13	8	23	20 F	15
9. Trinidad & Tobago	1971	1.0 H	940 H	90	40	5.1	18.9	95	35	49	11	25	19	14
SOUTH AMERICA														
1. Brazil	1971	98.2 H	530 H	67 F	16 H	3.0 H	12.0 H	84	31 E	16 N	17 E	...	18 C	35 C
2. Chile	1969	10.0 H	860 H	90	32	5.4	29.0 F	90 F	40	35	31	32 A	28 C	41 A
3. Colombia	1970	23.9 H	400 H	74 H	12	3.7 N	10.9	99 X	36	19 X	21	14	29	30
4. Ecuador	1972	6.3	340	69	11	3.7	18.6	72	38	18	36	14	30	48
5. Guyana	1974	0.7 H	400	83 A	35	5.8 N	14.7	92 X	33 X	60 X	1	24	31	...
6. Paraguay	1970	2.4 H	320 H	79	5	2.2	14	89 X	26	17 X	2	15	12	31
7. Peru	1971	14.1 H	520 H	72	18	4.5	21.1	80	37	30	15	22	23	111
8. Venezuela	1970	11.1 H	1,240 H	81	45	4.9	22.0	80	33	35	32	22	18	59
ASIA														
1. Bangladesh	1973	72.5 H	70 H	23	...	1.2	20.2	56	48	13 X		28	4	30
2. China (Taiwan)	1973	15.1 H	490 H	82	19.3	3.3	14	98	40	61	23	26	32	299
3. India	1971	563.5 H	110 H	29	3 AV	2.6 AVY	...	79 X	43 A	28 X	6 AY	20 AY	11 AY	52 AY
4. Indonesia	1971	121.6 H	90 H	56	1 Q	2.6 HV	13.0 F	77 X	39	15 X	26	18 X	8	...
5. Iran	1971	31.2 H	490 H	37	11	3.1	10.8	62	33	25	3	36 F	23	39 F
6. Iraq	1970	10.1 H	370 H	26	19	6.7	16.3	64	22	25	3	26	17	80
7. Jordan	1973	2.4 H	270 H	59	19	7.9	8.8	91 X	38	50 X	10	22	3	101
8. Korea	1973	32.3 H	310 H	92	11	2.9	17.9	97	53	51	43	39	28	88
9. Lebanon	1971	2.9 H	700 H	86 F	21 F	4.0	21.0	79	18 U	34	36	23	4	120
10. Malaysia	1972	11.4 H	430 H	60	32	6.4	20.9	90 X	32	33 X	2	26	19	80
11. Oman	1973	0.6	330	20	12	2.3	3.8	24 X	33	0.2 X	23	9	...	...
12. Pakistan	1973	66.7	130	39	1	1.3	8.0	48	35	8	5	18 E	7 K	41 F
13. Philippines	1973	39.0	220	72	6.3	4.6	22.0	119 X	30	71	8	36	10	457
14. Singapore	1972	2.1	1,300	75 F	46	3.1 N	11.5	107 X	33	47	4	24	20	172
15. Thailand	1973	38.5 H	220 H	82	7.5	3.0 N	18.7	87 X	32	21 X	10	24	15	37 G
16. Turkey	1969	37.0 H	370 H	49 A	9	3.5	17.1	92 X	42	25 X	14	33	26	41
17. Yemen Arab Rep.	1971	6.1 H	90 H	10	1 F	1.0 F	9.4 F	12 H	40 H	1 H	3 H	18 H	...	1 H
18. Yemen P.D.R.	1972	1.3	100	10	6 G	2.3 E	12.6 G	70 X	29	12 X	14	20	8	...
SUMMARY FOR DEVELOPING COUNTRIES														
Number of Countries				59	64	64	64	64	65	65	64	62	56	55
Range				(5-98)	(1-58)	(1.0-9.0)	(3.8-32.3)	(6-119)	(18-72)	(.2-75)	(1-43)	(9-36)	(0-36)	(0.04-457)
Quartiles:	Upper			72	18	4.7	21.0	86	45	29	20	26	23	41
	Median			52	10	4.0	18.2	74	36	13	10	24	15	16
	Lower			20	5	3.0	14.0	46	33	8	5	19	8	6

Symbols:
... Datum unavailable
- Magnitude nil or negligible
0 Magnitude less than half of unit employed
? Questionable
* Includes part-time students

Notes:
A = 1965 or before
B = 1966
C = 1967
D = 1968
E = 1969
F = 1970
G = 1971
H = 1972
J = 1973
M = Current prices
N = GNP
P = Including foreign aid
Q = Central Government only
U = Public only
V = Including private expenditure
X = Including overaged students
Y = UNESCO sources

Sources: Columns (1) and (2): World Bank Atlas
Columns (3) - (9) : and (11): IBRD Missions
Columns (10) - (12) and (13): UNESCO Statistical Yearbook and/or IBRD Missions

ANNEX 1

REPUBLIC OF KOREA
Technical Manpower Requirements
by Broad Skill Category, 1974-81
(in '000s)

	1974	1975	1976	1977	1978	1979	1980	1981
Scientists/Engineers								
Projected stocks	38	45	54	64	75	90	107	127
Annual requirements	6.9	8.4	10.1	11.2	13.1	16.9	19.8	23.6
Training Deficits (-) or surpluses (+)	+8.6	+7.7	+7.6	+10.0	+8.1	+4.3	+1.4	-2.4
Technicians	(in brackets, figures for non-industrial manpower)1/							
Projected stocks	96 (18)	111 (20)	128 (23)	147 (26)	168 (28)	195 (32)	224 (35)	258 (39)
Annual requirements	15.4 (2.5)	17.9 (2.7)	20.6 (3.0)	22.6 (3.5)	25.2 (3.6)	32.0 (4.0)	35.3 (4.5)	40.9 (5.2)
Training Deficits (-) or surpluses (+)	-8.4 (-0.8)	-10.2 (-1.1)	-12.9 (-1.4)	-14.9 (-1.8)	-17.4 (-1.9)	-24.2 (-2.3)	-27.5 (-2.8)	-33.1 (-3.5)
Skilled Workers	(in brackets, figures for heavy and chemical industries)							
Projected stocks	624 (254)	736 (304)	874 (368)	1080 (429)	1180 (505)	1420 (626)	1680 (752)	1990 (906)
Annual requirements	111 (49)	131 (59)	160 (73)	159 (73)	198 (87)	277 (136)	302 (144)	364 (177)
Training deficits (-) or surpluses (+)	-66 (-30)	-82 (-38)	-107 (-51)	-106 (-51)	-145 (-66)	-225 (-115)	-250 (-122)	-311 (-155)

1/ i.e. in agriculture, fisheries and merchant marine.

Source: Ministry of Science and Technology, Scientific and Technical Manpower Supply and Demand (1972-81), 1973.

December 1974

REPUBLIC OF KOREA

Inter-Provincial Differences
in Middle and High School Enrollments, 1973
(in 1,000; figures in brackets are enrollments as a percentage of 1970 Census Population)

Province/Special City	Census Population (1970)	Enrollments		
		Middle Schools	General High Schools	Technical High Schools
Seoul	5,525.3	340.6 (6.2)	150.6 (2.7)	72.7 (1.3)
Busan	1,876.4	115.4 (6.2)	36.5 (1.9)	46.7 (2.5)
Gyeong Gi	3,353.3	190.4 (5.7)	21.7 (0.6)	52.3 (1.6)
Gang Weon	1,865.4	89.2 (4.8)	13.2 (0.7)	24.0 (1.3)
Chung Bug	1,480.3	87.3 (5.9)	10.3 (0.7)	17.7 (1.2)
Chung Nan	2,858.2	169.3 (5.9)	22.2 (0.8)	38.0 (1.3)
Jeon Bug	2,431.9	132.6 (5.5)	29.9 (1.2)	27.0 (1.1)
Jeon Nam	4,004.8	212.0 (5.3)	34.2 (0.9)	49.3 (1.2)
Gyeong Bug	4,555.9	271.8 (6.0)	59.9 (1.3)	55.4 (1.2)
Gyeon Nam	3,118.9	200.2 (6.4)	26.8 (0.9)	39.0 (1.2)
Jeju	365.1	23.3 (6.4)	5.7 (1.6)	6.1 (1.7)
Totals and Averages	31,435.3	1,832.1 (5.8)	411.1 (1.3)	428.2 (1.4)

Source: Ministry of Education

October 1974.

ANNEX 2

ANNEX 3

REPUBLIC OF KOREA

Middle School Enrollment Differentials:

Urban/Rural 1973

Province	Middle School Enrollments (in 1,000) in 1973 in Si 1/	in Gun 2/	1970 Population (in 1,000) in Si	in Gun	MS Enrollment per 1,000 Pop. in Si	in Gun
Seoul	341.0	-	5,525.2	-	62	-
Busan	115.4	-	1,876.4	-	62	-
Gyeong-gi	57.0	133.4	907.6	2,445.4	63	55
Gang-weon	27.7	61.5	381.6	1,483.7	72	41
Chungcheong Bug	20.7	66.6	231.1	1,249.1	90	53
Chungcheong Nam	35.0	134.3	492.0	2,366.0	71	57
Jenora Bug	38.8	93.8	460.8	1,970.9	84	48
Jeonra Nam	60.5	151.5	884.0	3,120.4	68	49
Gyeongsang Bug	93.9	177.9	1,390.4	3,165.1	68	56
Gyeongsang Nam	47.6	152.6	673.4	2,444.9	71	62
Jeju	6.9	16.4	106.3	258.8	65	63
TOTAL	844.2	987.9	12,928.8	18,504.3	65	53

1/ Si means city or urban areas.
2/ Gun means counties or rural areas.

Source: Ministry of Education and Statistical Yearbook of Korea.

October 1974.

REPUBLIC OF KOREA

Actual and Projected Enrollments and Teacher Requirements

Public and Private Education (in thousands)

Level and Type	1973 Enrollments	Teacher/pupil ratio	Total Teachers	1976 Enrollments	Teacher/pupil ratio	Total Teachers	1981 Enrollments	Teacher/pupil ratio	Total Teachers
A. Primary level:									
Enrollments	5,692	1:53	108	5,461	1:47	117	5,500	1:45 1/	122
Enrollments as % of age group	109%			106%			102%		
Enrollments as % of age group, excluding over age students	97%			97%			98%		
B. Middle level:									
(i) middle school	1,832	1:45	41	2,079	1:37	56	2,240	1:30	75
(ii) civic school	52	1:24	2.2	0	-	-	-	-	-
(iii) lower trade school	11	1:22	0.5	63	1:23	2.7	60	1:20	3
Sub-total	1,895	1:43	43.7	2,141	1:36	58.7	2,300	1:29	78
Enrollments as % of age group	60%			77%			94%		
C. High School level:									
(i) general high school	411	1:34	12	709	1:29	24.5	676	1:27	25
(ii) industrial high school 2/	428	1:30	14	510	1:25	20.4	724	1:20	36
(iii) higher trade school	13	1:19	0.7	13	1:19	0.7	13	1:19	0.7
(iv) in grades 10, 11, 12 of junior colleges	15	1:17	0.9	-	-	-	-	-	-
Sub-total	867	1:31	27.6	1,232	1:27	45.6	1,413	1:23	61.7
Enrollments as % of age group	30%			45%			57%		
D. Higher Education:									
(i) junior teachers college	13	1:17	0.8	10	1:13	0.8	10	1:20	0.5
(ii) junior college	14	1:14	1.0	33	1:19	1.7	35	1:20	1.7
(iii) other non-university	4	1:13	0.3	15	1:20	0.8	30	1:20	1.5
(iv) university level	178	1:19	9.3	195	1:17	11.5	230	1:16	14.3
(v) graduate studies	10			21			22		
Sub-total	219	1:19	11.4	274	1:19	14.8	327	1:18	18.0
Enrollments as % of age group	8%			9%			9%		
Total enrollments	8,673			9,108			9,540		
As % of 6-21 age group	68%			69%			70%		

1/ With new specialized teacher for arts.

2/ Includes comprehensive schools.

Source: IBRD mission estimates on the basis of CLEP*, Unesco Project Identification Mission report and draft research study for the revision of the medium term Educational Development Plan (1972-76) proposed by KEDI+.

* CLEP - Comprehensive Long Term Educational Planning.
\+ KEDI - Korea Educational Development Institute.

January 1975.

ANNEX 5

REPUBLIC OF KOREA

Education and Training Expenditures (Public)

by levels of Education and Types of Expenditures

1973 (in Won Billion)

Level of Education	Total Expenditure	Recurrent Expenditure	Capital Expenditures
Primary Schools	83.8	70.9	12.8
Middle Schools	22.9	18.2	4.7
High Schools	14.5	10.4	4.1
Technical Junior Colleges	1.7	1.3	0.3
Other Colleges and Universities	9.3	7.1	2.1
Other Expenditure 1/	11.4	3.6	8.1
Totals	143.6	111.5	32.1
(MOE budget)	(118.4)	(93.0)	(25.4)
(local government budgets)	(25.2)	(18.5)	(6.7)
Vocational Training (O.L.A.)	2.2	n.a.	n.a.

1/ mainly administration expenditure and special accounts

Source: Ministry of Education and Office of Labor Affairs data and mission's compilation

October 1974

ANNEX 6

REPUBLIC OF KOREA

Actual and Projected Education and Training Expenditures, by Level of Education, 1973 1976 and 1981 (in Won billion and constant 1973 prices

	1973	1976	1981
Primary Schools	85	92	103
Middle schools	40	52	71
High Schools	30	53	67
Higher Education	31	34	42
Other	15	15	20
Sub-Total	201	246	303
Vocational Training (OLA)	2	4	7
TOTAL	203	250	310
(as percentage of GNP)	(4.1)	(4.2)	(3.1)

Note: Private schools included in estimates; administrative expenses included in "other".

Source: Ministry of Education and Office of Labor Affairs data and mission's compilation.

December 1974

REPUBLIC OF KOREA

Manpower Requirements in Fishing Fleet
1974 - 81

Classification	Expansion of Powered Fishing Fleet: Size (Gross Ton)	Present numbers	Increase between 1974-81 (No. of vessels)			Manning Scale: Navigator	Engineers	Radio Operators	Manpower Requirements: Navigator	Engineers	Radio Operators
Coastal and Offshore (A)[1]	30-50	1,061			1,136	1	1	one in three vessels	1,140	1,140	380
Coastal and Offshore (B)[2]	30-50	118	126								
	50-100	708	-11	sub-total	115	1	1	one in two vessels	120	120	60
Coastal and Offshore (C)[3]	100-300	80	59			2	2	1	120	120	60
	300-500	-	21	sub-total	80	3	3	1	60	60	20
Deepsea	below 500	505	732			3	3	1	2,200	2,200	740
	500-3,000	46	100			4	4	1	400	400	100
	above 3,000	1	8	sub-total	840	5	5	2	40	40	20
								Sub-Total	4,080	4,080	1,380
								50% Reserve[4]	2,040	2,040	690
	TOTAL	2,519			2,171			TOTAL	6,120	6,120	2,070

1/ Coastal and Offshore (A) requires 3rd class licenced navigators and engineers.
2/ Coastal and Offshore (B) and above requires 1st and 2nd class licenced navigators and engineers.
3/ Coastal and Offshore (C) and above requires Radio Operators.
4/ The reserve is due to that the on-shore time and off-shore time are about four months and eight months respectively in a year.

Source: Office of Fisheries and mission estimates.

October 1974

ANNEX 7

REPUBLIC OF KOREA

THIRD EDUCATION PROJECT

Capacity and Workshop[1/] Distribution in Vocational Training Institutes (VTIs)

Courses / Location	Tool & Die Making		Machining		General Fitting		Sheetmetal work and Welding		Plumbing		Industrial Electricity		Industrial Electronics		Total Capacity of each VTI	Total Shops in each VTI	Total Equipment cost per VTI (US$'000)
	Cap.	No. of Shops	Cap.	No. of Shops	Cap.	No. of Shops	Cap.	No. of Shops	Cap.	No. of Shops	Cap.	No. of Shops	Cap.	No. of Shops			
Chungmu			90	5	90	5	60	3	60	3	60	4			360	20	925
Changweon	30	1	90	5	90	5	90	5	60	4					360	20	975
Jeonju	30	1	90	5	90	5					90	5	60	4	360	20	900
Gumi	30	1	90	5	90	5					60	4	90	5	360	20	900
Suncheon			90	5	90	5	60	3	60	3	60	4			360	20	990
Pohang	30	1	90	5	90	5	90	5	60	4					360	20	925
Cheongju	30	1	90	5	90	5					90	5	60	4	360	20	970
Total capacity by course	150		630		630		300		240		360		210		(Grand total) 2,520		6,585
Total Shops by course		5		35		35		16		14		22		13		(Grand total) 140	

Source: Office of Labor Affairs and Mission estimates.
January 1975

1/ Each workshop is for 15 students.

ANNEX 8

ANNEX 9

REPUBLIC OF KOREA

Third Education Project

Technical Assistance Required

		Man-Years	Estimated Cost (US$'000)
Part A			
	Ministry of Education		
	a) Specialists services	Nil	
	b) Fellowships		
	20 persons to be trained as technical teacher trainers and agricultural junior college teachers.	20	250.0
	Total Estimated cost for MOE		250.0
Part B			
	Office of Labor Affairs		
	a) Specialists services as follows:		
	(i) Curriculum expert	4	
	(ii) Machine work expert	2-1/2	
	(iii) Special welding expert	2-1/2	
	(iv) Tool and die-making expert	2-1/2	
	Sub-total	11-1/2	402.5
	b) Fellowships		
	(i) 15 persons on vocational training management, each of one month	3-1/2	
	(ii) 40 persons for specialized training each of 4 months	13-1/2	
	Sub-total	17	212.5
	Total Estimated Cost for OLA		615.0
Total Specialists Services		11-1/2	402.5
Total Fellowships		37	462.5
Total for Project			US$865.0

Source: Ministry of Education, Office of Labor Affairs and mission estimates.

November 1974

REPUBLIC OF KOREA
THIRD EDUCATION PROJECT

SUMMARY OF ESTIMATED PROJECT COSTS
(in Million Korean Won and Thousand US Dollars)

		Number of Student Places		Size		Site	Construction				Profes-			Total Cost	
		Existing Places/ Boarding	Planned Places/ Boarding	Class- room	Work- shop	Develop- ment	Academic & Communal	Student Boarding	Total	Furniture	sional Services	Equipment	Technical Services	Won Million	US$ ('000)
A. MINISTRY OF EDUCATION (MOE)															
N. Mechanical Technical School															
N-101 Iri			1,980/ -	60	20	71	488	-	488	100	29	1,365	-	2,053	4,232
P. Agricultural Junior Colleges															
P-101 Yesan		800/ -	800/100	60	20	31	154	57	211	18	12	125	-	397	819
P-102 Sang Ju		200/ -	800/ 80	60	20	31	147	66	213	16	12	149	-	421	868
P-103 Suncheon		800/ -	800/200	60	20	46	276	114	390	24	22	120	-	602	1,242
Sub-Total		1,800/ -	2,400/380			108	577	237	814	58	46	394	-	1,420	2,929
Q. Fisheries College															
Q-101 Busan		980/ -	1,160/ -	60	20	79	538	-	538	36	32	648	-	1,333	2,749
R. Fisheries High Schools															
R-101 Geoje		660/ -	1,260/ -	60	20	19	127	-	127	10	7	239	-	402	829
R-102 Jumun Jin		780/ -	900/ -	60	20	18	130	-	130	7	7	173	-	335	691
R-103 Pohang		720/ -	900/ -	60	20	28	188	-	188	14	11	155	-	396	817
Sub-Total		1,260/ -	3,060/ -			65	445	-	445	31	25	567	-	1,133	2,337
S. Marine Junior College															
S-101 Mogpo		960/430	1,600/ -	40	20	-	-	-	-	47	-	399	-	446	920
Engineering and Technical Services for the preparation of future education projects													258	258	531
Total Project Item A excluding Contingencies	in Won	5,000/430	10,200/380			323	2,048	237	2,285	272	132	3,373	258	6,643	
	in US$					666	4,223	489	4,712	561	272	6,956	531		13,698
Foreign Exchange Component	in US$					118	1,216	141	1,357	161	32	6,372	440		8,480
B. OFFICE OF LABOR AFFAIRS (OLA)															
T. Vocational Training Institutes															
T-101 Cheongju		-	360/180	30	15	83	350	70	420	33	26	462	-	1,024	2,111
T-102 Jeonju		-	360/180	30	15	83	351	69	420	33	26	429	-	991	2,043
T-103 Gumi		-	360/180	30	15	84	359	71	430	34	27	429	-	1,004	2,070
T-104 Changweon		-	360/180	30	15	87	368	73	441	35	28	465	-	1,056	2,177
T-105 Suncheon		-	360/180	30	15	87	369	72	441	34	27	471	-	1,060	2,186
T-106 Chungmu		-	360/180	30	15	87	368	73	441	35	28	441	-	1,032	2,128
T-107 Pohang		-	360/180	30	15	86	369	72	441	34	27	441	-	1,029	2,121
Total Project Item B excluding Contingencies	in Won		2,520/1,260			597	2,534	500	3,034	238	189	3,138		7,196	
	in US$					1,231	5,224	1,031	6,255	490	391	6,469			14,836
Foreign Exchange Component	in US$					218	1,504	296	1,800	141	47	5,926			8,132
Total A & B		5,000/430	12,720/1,640												
	in Won					920	4,582	737	5,319	510	321	6,511	258	13,839	
	in US$					1,897	9,447	1,520	10,967	1,051	663	13,425	531		28,534
Total Foreign Exchange Component	in Won					163			1,531	148	38	5,963	214	8,057	
	in US$					336	2,720	437	3,157	302	79	12,298	440		16,612
Contingencies Amount															
A. MOE	in Won					139	881	102	983	109	33	1,080	77	2,421	
	in US$					287	1,817	210	2,027	224	68	2,226	159		4,991
B. OLA	in Won					257	1,090	215	1,305	95	48	1,003		2,708	
	in US$					529	2,246	444	2,690	197	98	2,070			5,584
Total Contingencies A & B	in Won					396	1,971	317	2,288	204	81	2,083	77	5,129	
	in US$					816	4,063	654	4,717	421	166	4,296	159		10,575
Total Project Including Contingencies	in Won					1,316	6,553	1,054	7,607	714	402	8,594	335	18,968	
	in US$					2,713	13,510	2,174	15,684	1,472	829	17,721	690		39,109
Foreign Exchange Component Percentage						18%	29%	29%	29%	29%	12%	92%	83%		57%
Foreign Exchange Amount	in Won					233	1,887	303	2,190	205	48	7,873	278	10,827	
	in US$					480	3,891	624	4,515	423	99	16,234	572		22,323

January 1975

ANNEX 10

ANNEX 11

REPUBLIC OF KOREA

THIRD EDUCATION PROJECT

SUMMARY OF ESTIMATED COST BY CATEGORIES

	Korean Won (Million)			US Dollars (Thousand)			% of Total
	Local	Foreign	Total	Local	Foreign	Total	Project Cost
1. Civil Works							
Site Development	757	163	920	1,561	336	1,897	4.9
Construction	3,788	1,531	5,319	7,810	3,157	10,967	28.0
Sub-Total	4,545	1,694	6,239	9,371	3,493	12,864	32.9
2. Professional Services	283	38	321	584	79	663	1.7
3. Furniture	362	148	510	746	305	1,051	2.7
4. Equipment	548	5,963	6,511	1,130	12,295	13,425	34.3
5. Engineering and Technical Services	44	214	258	91	440	531	1.4
Total excl. contingencies	5,782	8,057	13,839	11,922	16,612	28,534	73.0
6. Total Contingencies							
Physical	578	806	1,384	1,192	1,661	2,853	7.3
Price	1,781	1,964	3,745	3,672	4,050	7,722	19.7
Total	8,141	10,827	18,968	16,786	22,323	39,109	100.0

REPUBLIC OF KOREA
THIRD EDUCATION PROJECT

CONTINGENCY ALLOWANCES
(in Thousand of US Dollars)

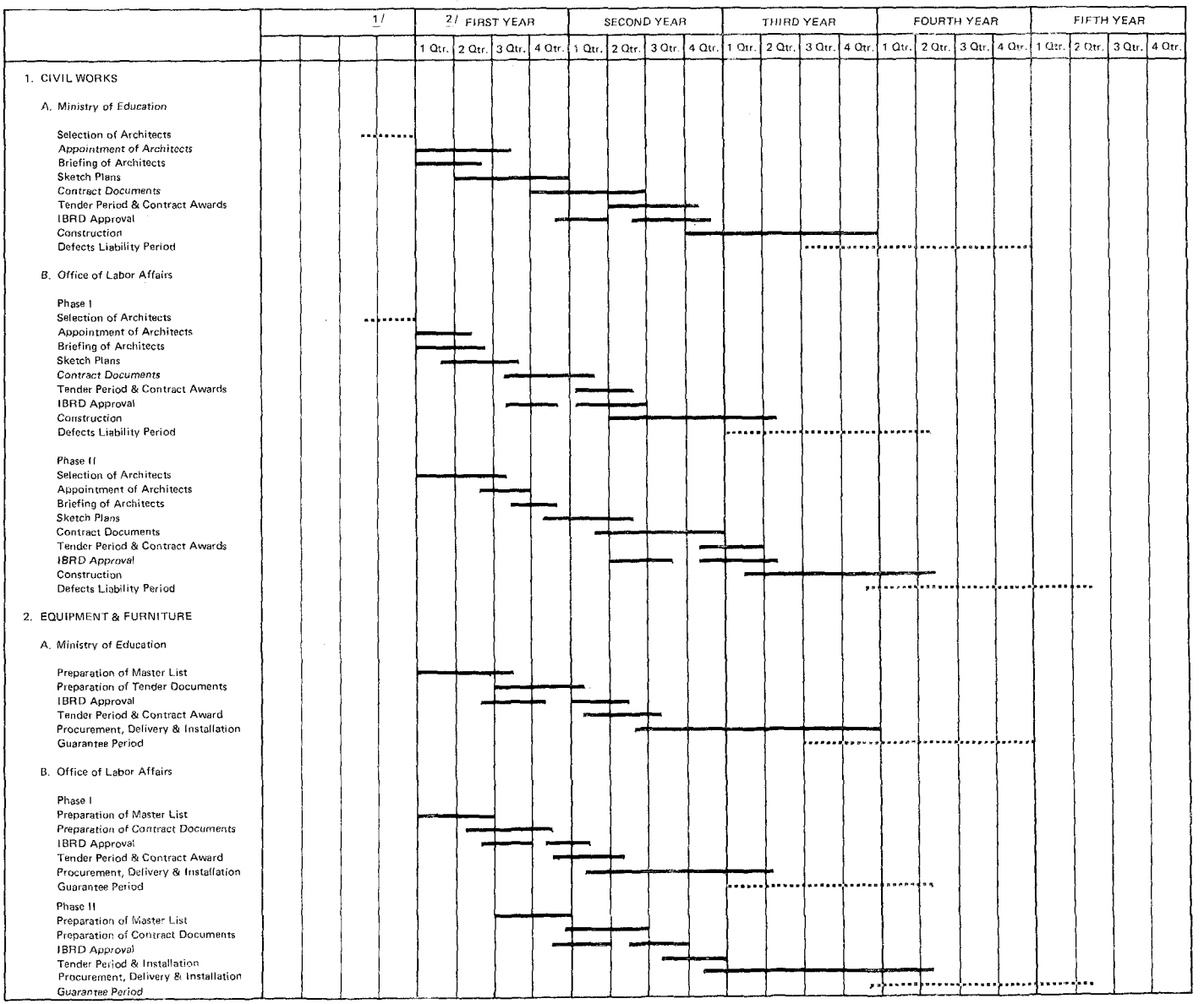
	Site Development			Construction			Furniture			Professional Services			Equipment			Technical Services			Total		
	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total
A. Total Project Cost excluding contingencies	548	118	666	3,355	1,357	4,712	400	161	561	240	32	272	584	6,372	6,956	91	440	531	5,218	8,480	13,698
Physical Contingencies Percentage	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
Amount	55	12	67	335	136	471	40	16	56	24	3	27	59	637	696	9	44	53	522	848	1,370
Price Contingencies Percentage	(33)	(33)	(33)	(33)	(33)	(33)	(30)	(30)	(30)	(15)	(15)	(15)	(22)	(22)	(22)	(20)	(20)	(20)	(30)	(24.0)	(26.7)
Amount	181	39	220	1,108	448	1,556	120	48	168	36	5	41	128	1,402	1,530	18	88	106	1,591	2,030	3,621
Total Project Cost including contingencies	784	169	953	4,798	1,941	6,739	560	225	785	300	40	340	771	8,411	9,182	118	572	690	7,331	11,358	18,689
B. Total Project Cost excluding contingencies	1,013	218	1,231	4,455	1,800	6,255	349	141	490	344	47	391	543	5,926	6,469				6,704	8,132	14,836
Physical Contingencies Percentage	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)				(10)	(10)	(10)
Amount	101	22	123	445	180	625	35	14	49	34	5	39	54	593	647				669	814	1,483
Price Contingencies Percentage	(33)	(33)	(33)	(33)	(33)	(33)	(30)	(30)	(30)	(15)	(15)	(15)	(22)	(22)	(22)				(31.0)	(24.8)	(27.9)
Amount	335	71	406	1,471	594	2,065	105	43	148	52	7	59	119	1,304	1,423				2,082	2,019	4,101
Total Project Cost including contingencies	1,449	311	1,760	6,371	2,574	8,945	489	198	687	430	59	489	716	7,823	8,539				9,455	10,965	20,420
Total A & B	2,233	480	2,713	11,169	4,515	15,684	1,049	423	1,472	730	99	829	1,487	16,234	17,721	118	572	690	16,786	22,323	39,109

A. Ministry of Education Items
B. Office of Labor Affairs Items

December 1974

ANNEX 12

REPUBLIC OF KOREA – THIRD EDUCATION PROJECT
IMPLEMENTATION CHART



1/ Date of Agreement signing

2/ Date of effectiveness

World Bank-9113(R)

ANNEX 1.2

ANNEX 14

REPUBLIC OF KOREA

THIRD EDUCATION PROJECT

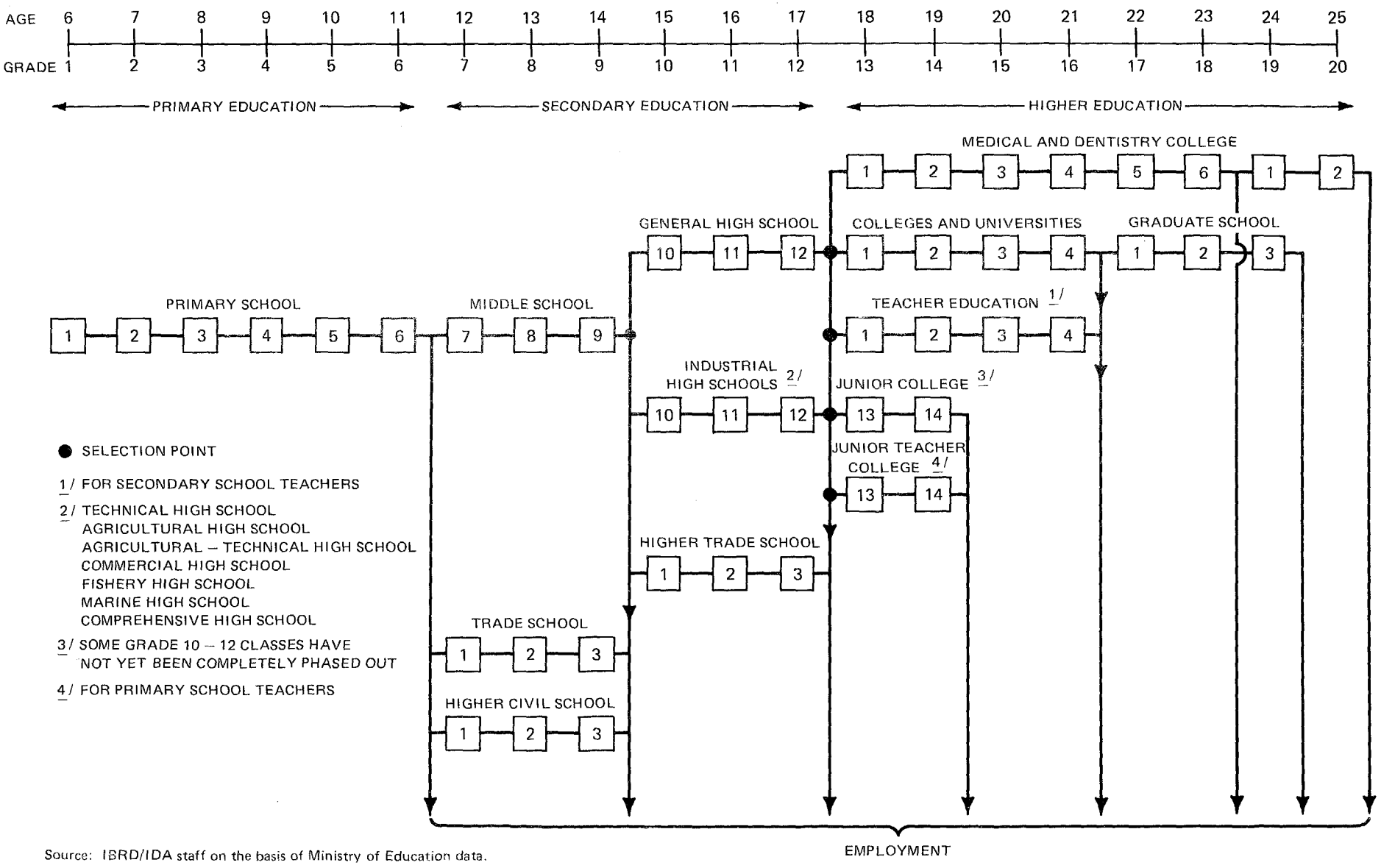
FORECAST OF DISBURSEMENT

Semester*	Semesterly Disbursement %	Semesterly Disbursement US$(000)	Accumulated Disbursement %	Accumulated Disbursement US$(000)	Total Balance Undisbursed US$(000)
1	-	-	-	-	22,500
2	0.1	30	0.1	30	22,470
3	1.2	270	1.3	300	22,200
4	3.1	700	4.4	1,000	21,500
5	11.1	2,500	15.5	3,500	19,000
6	17.8	4,000	33.3	7,500	15,000
7	22.2	5,000	55.5	12,500	10,000
8	20.0	4,500	75.5	17,000	5,500
9	17.8	4,000	93.3	21,000	1,500
10	6.7	1,500	100.0	22,500	0

* Starting from the date of effectiveness.

January 1975

REPUBLIC OF KOREA: STRUCTURE OF EDUCATION, 1974



● SELECTION POINT

1/ FOR SECONDARY SCHOOL TEACHERS

2/ TECHNICAL HIGH SCHOOL
AGRICULTURAL HIGH SCHOOL
AGRICULTURAL – TECHNICAL HIGH SCHOOL
COMMERCIAL HIGH SCHOOL
FISHERY HIGH SCHOOL
MARINE HIGH SCHOOL
COMPREHENSIVE HIGH SCHOOL

3/ SOME GRADE 10 – 12 CLASSES HAVE NOT YET BEEN COMPLETELY PHASED OUT

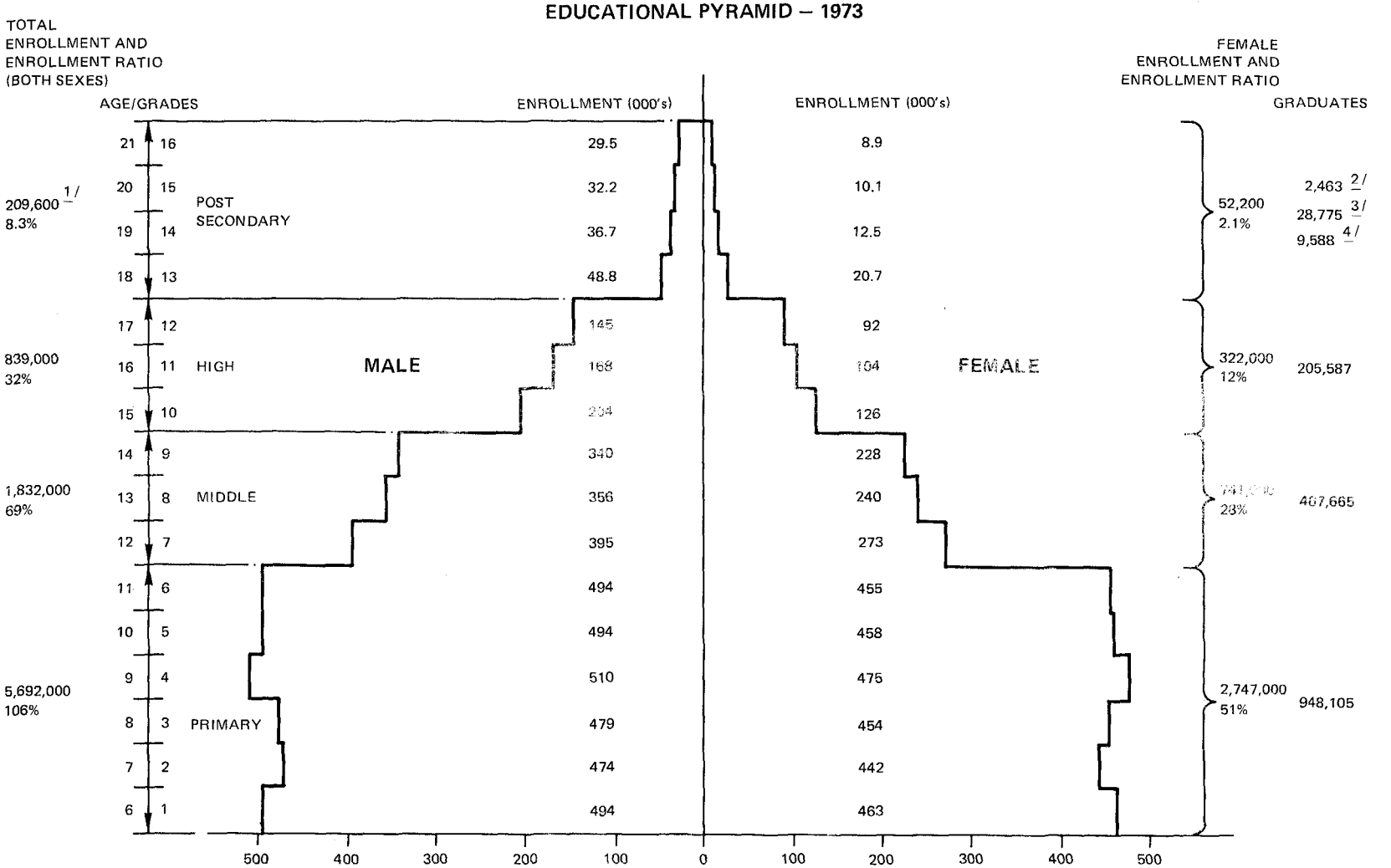
4/ FOR PRIMARY SCHOOL TEACHERS

Source: IBRD/IDA staff on the basis of Ministry of Education data.
August 1974

World Bank–9083

CHART 1

REPUBLIC OF KOREA
EDUCATIONAL PYRAMID – 1973



Source: Prepared by the Mission based on data from the Ministry of Education, Statistics Year Book, 1973 and Economic Planning Board Statistics Year Book, 1974

Figures for enrollments have been rounded, and are for formal system only.

1/ Including 10,200 in graduates studies
2/ From graduate schools
3/ From universities and 4-year colleges
4/ From other post-secondary schools

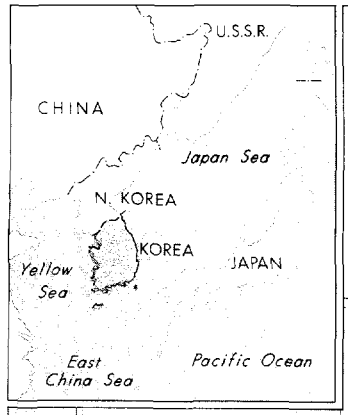
World Bank–9084(R)

CHART 2

Note:

During negotiations, the Government requested, and the Bank agreed, that the location of the Vocational Training Institute at Cheonan be changed to Cheongju.

IBRD 11249
DECEMBER 1974



The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.

NORTH KOREA

East Sea

Yellow Sea

GYEONG GI J

CHUNCHEON

GANG WEON

JUMUNJIN

SEOUL CITY

SUWEON

CHEONAN

YESAN

CHUNG NAM

CHEONGJU

CHUNG BUG

SANGJU

GYEONG BUG

DAEJEON

GUMI

POHANG

IRI

JEON BUG

JEONJU

DAEGU

ULSAN

GYEONG NAM

CHANGWEON

MASAN

BUSAN CITY

GWANGJU

SUNCHEON

JEON NAM

CHUNGMU

GEOJE

MOGPO

JEJU

JEJU

125° 126° 127° 128° 129°

38° 37° 36° 35° 34°

KOREA

THIRD EDUCATION PROJECT

MINISTRY OF EDUCATION PROJECT INSTITUTIONS

- MECHANICAL - TECHNICAL HIGH SCHOOL
- AGRICULTURAL JUNIOR COLLEGES
- FISHERIES COLLEGE
- FISHERIES HIGH SCHOOLS
- MARINE JUNIOR COLLEGE

OFFICE OF LABOR AFFAIRS PROJECT INSTITUTIONS

- VOCATIONAL TRAINING INSTITUTIONS

PROVINCIAL BOUNDARIES

INTERNATIONAL BOUNDARIES

0 20 40 60 80 100 120 140 160
KILOMETERS

0 20 40 60 80 100
MILES